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GUY'S HOSPITAL GAZETTE

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PASSIM

DURING the early part of last month there were rumours current to the effect that the micro-organism of depression, so rife these days, had permeated the arrangements for Christmas in the wards. It seemed inconceivable that such could be the case. The Sisters, with their noted powers of ingenuity and organisation, soon saw to it that these gloomy prognostications were proved false, and demonstrated that reasonable economy was not inconsistent with enjoyment. Needless to say, the Yuletide festivities reached the high standard of excellence that was confidently expected by all familiar with the traditions of Guy's. The ward decorations, if not in all cases so grandiose as hitherto, were none the less effective. Moreover, there was in all departments that feeling of cheerfulness and goodwill which only those who have visited a large hospital at this season of the year can have experienced.

Concerts were not provided in all the wards this year, but those that were held were much appreciated by the patients and their friends. We feel that all who so kindly came and gave of their time and their talent must have felt amply rewarded by the very obvious pleasure they gave.

▭

With the festivities of Christmas over, an air of gloom has pervaded the Hospital. Nor is the cause of this melancholy atmosphere far to seek. Within the next few days Mr. Steward retires from his position as Senior Surgeon at the Hospital. It is impossible to over-estimate the loss this will mean to Guy's. Throughout his whole career Mr. Steward has earned the respect and admiration of all who have been fortunate enough to come into contact with him. Elsewhere in this issue we publish an appreciation of Mr. Steward's career at Guy's. Also on another page our cartoonist has depicted the statue of Thomas Guy, having stepped from his pedestal, thanking Mr. Steward for his great services to this Hospital. This is indeed a happy and genuine thought, for none is more worthy of such gratitude. We at Guy's derive comfort from the thought that Mr. Steward only relinquishes the post of Senior Surgeon to take up that of Consulting Surgeon, there in no way being any severance of his attachment to the Hospital.

We take this opportunity on behalf of all Guy's men of wishing him many years of happiness in his new role, and at the same time of expressing the hope that he will return to Guy's as often as his busy life permits.

▭

LAST Wednesday was Founders' Day, the Hospital having been opened on January 6th, 1725. Consequently, this day was made the occasion of a Gift Day for the Hospital, and a Commemoration Service was held in the Chapel in the morning, at which the Rev. F. H. Gillingham, Rector of Lee, preached. The Matron, from a vantage point situated in the Colonnade, received presents both in money and kind, and the Hospital was open for inspection to visitors during the afternoon.

▭

WE have pleasure in welcoming back to the Hospital Mr. Doherty, to his position of Assistant Surgeon. Mr. Doherty has been in America for some months, and we are all very glad to see him back again. We feel that the " regular diners " will, no doubt, now have many opportunities for assembling in the near future.

▭

THE Nurses' Dance, held on December 29th, was undoubtedly one of the most enjoyable

functions of the year. Without it the Christmas festivities would be quite incomplete, and we should like to thank the nurses for again giving us a most delightful evening.

WE have been asked to announce that the Residents' Play will be held in the Physiological Theatre on February 9th, 10th, 11th and 12th. Applications for tickets should be addressed to the President of the Residents and should reach him not later than the end of January. No applications will be considered after that date. For the dress rehearsal, which will be held on February 8th, no tickets are required.

We would also like to remind readers that the Residents' Ball this year is on Friday, January 22nd, at the Grosvenor House. Tickets 21*s*. each, may be obtained from the President of the Residents or other members of the Committee. We feel certain that, despite the economy necessary in these hard times, the Ball will prove as successful as that of last year.

WE have been asked by Sister Out-patients to express her most sincere gratitude to all those who helped, either by gifts or by actual attendance, to make the Landon Tea such a great success.

WE have pleasure in reporting that the sale of Christmas Cards supplied gratuitously by Messrs. Ash & Co., Ltd., has reached the gratifying amount of £120 14*s*. 3*d*. This is to be handed to the Hospital funds, and we would heartily thank all those who have contributed to this result by their purchases. We are greatly indebted to Messrs. Ash for their kindness in supplying the cards.

Mr. Steward's Retirement

MR. STEWARD'S interests at Guy's have been so many and varied that there is scarcely any hospital activity that will not feel the loss of his active support that must, unfortunately, come with his retirement.

In his practice of surgery Mr. Steward has taught us to be critical, and to remember that the safer the operation the better, and his influence has helped more than anything else to keep surgery sane during a period when there was a danger of indiscriminate operating. Although he is leaving the active staff, his teaching will remain and its benefits continue. As an artist his loss to us is irreplaceable. Those who have, for example, seen an œsophageal pouch come into perfect view with a few gentle strokes of his knife will realise that we cannot make up for his absence from our theatres.

The principles of his teaching have made such a deep impression at Guy's that there is no fear of their being lost—they are now part of our tradition, but the future generations of Guy's men will surely have missed a great deal when there are no longer any ward rounds by Mr. Steward. The value of his surgical opinion has been recognised far beyond the limits of Guy's for very many years; its value is the result of his natural skill, of his long experience, and of his unflagging interest in every case that has come under his care. His house surgeons at Guy's know also his rare gift of being able to form an opinion from a telephone conversation. None can hope to compete with him in this respect, but all admire the almost uncanny regularity with which he is right.

The Clubs' Union has always felt the benefit of Mr. Steward's support. His active interest in the Rugby Football Club and in the Athletic Club are but examples of the way in which he has encouraged sport in the Hospital, and, although his own interest in the matches has been for him sufficient reason for the time he has given to this side of the Hospital activities, yet the encouragement of his presence has done much to foster the keenness of which our clubs are so justly proud. They owe to him much that has made them the popular institutions that they are.

In hospital management Mr. Steward has laboured long for the good of Guy's. The universal respect in which he is held has been a power for unity that will be greatly missed now that he is no longer an active member of the various committees that he has served and directed for so many years; but the results of his efforts remain with us. He has helped to consolidate the Guy's

tradition, and has added of his own much that we shall always value.

In his work outside the Hospital we have all felt the reflected credit of his public work, particularly so in respect of his military surgery during the War, and of his honour in being elected Vice-President of the Royal College of Surgeons.

Quite apart from our pride in his eminence as a surgeon and our gratitude for his help and interest in our Hospital, we at Guy's who know him realise that there is something more that we shall miss in our every-day life now that he has retired from the active staff—that is, his personality and his influence on individuals. His interest in men was so wide that there must be very few Guy's men who have not gained something from his personality. His influence was great and was born of a universal respect for him, a respect which everyone felt the first time they met him, and which increased without limit as they came to know him more. He was always fair, often outspoken; he sometimes praised, he never flattered; but what greater reward for their efforts have his dressers and house surgeons ever desired than Mr. Steward's quiet approval? Those who have worked with him know how much it meant to them, and how great was its influence in helping them to do their best. He inspired loyalty. Loyalty on the Steward Firm was the natural, the obvious, the only thing. Such was his influence, too, that all men were straightforward in their dealings with him; it was never necessary to be otherwise if you knew him well, for he knew instinctively those rare occasions when a word of praise or exoneration from him could wipe out all difficulties, and at such times he never failed to give it.

No one was ever impatient of his authority, but his word was obeyed, not because he spoke strongly, not merely because of his eminence, but simply because to rebel was an insult to oneself, an injustice to that deep respect which he so naturally commanded.

With his retirement we shall retain all that he has given us in our work, our sport, and our other institutions; we shall remember always the many hospital stories associated with his name, and we hope now that he is Consulting Surgeon we shall still be able to seek his advice, and to feel the personality of one who has meant so much to us in the past.

The Beginnings of Bright's Disease

A Lecture delivered at Guy's Hospital, December 18th, 1931, by Sir William Hale-White, K.B.E., M.D., F.R.C.P., Consulting Physician to Guy's Hospital.

GENTLEMEN,—The first thing I want to say is, what a great pleasure it is for me to be among you. For 40 years I taught students at Guy's, so you can imagine it is like old times to be here again.

The next thing I want to tell you is the reason why I took this subject. It is one which has interested this School of Medicine for over a century, and at no time, perhaps, are the activities in connection with the disease greater than they are here now, for you have my colleagues Osmon, Gibberd and their co-workers still engaged on the problem of Bright's disease.

Bright was born in 1789. I show you on the screen a picture of him as a child. At the age of 19 he went to the University of Edinburgh to study medicine. He was fortunate in that his father was a banker, so there was no great hurry about his education. After he had been in Edinburgh for a year he went to Iceland with Sir George Mackenzie, who wrote a book, "Travels in Iceland." You will find in it some natural history by our young Bright, and drawings by him, too. When he returned from Iceland he came to Guy's, and during his studentship here he wrote a paper on the geology of the rocks near Bristol. Incidentally, he wrote his thesis on erysipelas, and for that thesis he got the degree of M.D. at the University of Edinburgh. He next went to Peterhouse, Cambridge, but did not find much there to interest him, so he left and travelled. He travelled widely. He was abroad two years, chiefly in Austria and Hungary, and wrote a large quarto book, which he illustrated with his own hand, giving a minute account of the people and the way in which life was carried on in the countries which he visited. There is nothing medical in the book, except an account of vaccination as used in Vienna at the time. But the book is worth securing, not only because of the letterpress, but also because of the very beautiful drawings with which Bright illustrated it.

He came back to London and was appointed to the staff of the Fever Hospital. While he was there he caught fever, and nearly died of it. Fortunately for English medicine, he did not. Then he went abroad again, travelling this time through France, Belgium and Germany. Finally,

at the age of 31, he returned to London, and was appointed Assistant-Physician at Guy's. After he had been on the staff of Guy's for seven years he published the first volume of this immortal book, which I have here, in three volumes, entitled, "Reports of Medical Cases." The picture on the screen is of Bright as Guy's students knew him at the time, and next I show you a picture of the title-page.

Before describing this book to you it will be a good thing, I think, if I tell you a word or two about the man, because if it had not been for his personality I do not think the book could have been written.

He was widely educated, a traveller, an artist, a geologist and an excellent linguist, beloved by everybody and, fortunately, when he came to Guy's everyone saw that he was a genius, and all his colleagues helped him. The students loved him. After one of his lectures they asked him to have it printed. He could always get people to work with him. As you will see, team work was with him quite common. He was constantly being asked for his opinion on cases outside. He was very proud of Guy's and intensely loyal to it and to his friends.

He left Guy's when he was 54 years of age and died when he was 69; if at any time you are walking along Piccadilly I wish you would turn into St. James's Church, on the south side, and you will see on the south wall a tablet to Richard Bright. And it is well there should be a tablet of him in London, because it is generally allowed that, next to Harvey, he was the greatest physician of modern medicine.

Now I will tell you something about his book. The first volume treats of diseases of the kidney. I particularly want to tell you what he set out to do. On the title-page are the words, "A Report of Medical Cases selected with the view of illustrating the symptoms by a reference to Morbid Anatomy," and in the preface he says, "The work will not be completed until every disease which influences the natural structure or originates in its derangements has been connected with the corresponding organic lesion." I wish you to note there the caution of the man; he does not say *caused by* the corresponding organic lesion. At the end of the preface—to show you how much he loved the Hospital—he says: "My opportunities have been increased by the great augmentation of the sumptuous hospital to which I am attached and in which, I am proud to say, that my colleagues, whether medical or surgical, have, by their unremitting kindness, shown how little jealousy interferes with the two sides of the profession." He says he will begin with diseases of the kidney in Volume I, and proceeds: "The evidences of organic diseases which occasionally present themselves in the structure of the kidney, and which, whether they are to be considered as the cause of the dropsical effusion or as the consequence of some other disease, cannot but be unimportant." Again, notice how wise he is in not assuming any cause, but simply saying he has "never yet examined the body of a patient dying with dropsy attended with coagulable urine, in whom some obvious derangement was not discovered of the kidneys."

There are 23 cases of kidney disease reported. The first is that of King; and inasmuch as King started the whole subject of Bright's disease, I think I had better give you brief notes of his case.

Joseph King, aged 34, an intemperate sailor, was admitted into Clinical Ward, Guy's Hospital, on October 12th, 1825, under the care of Dr. Bright, suffering from general œdema, scanty urine and pains in the loins. He had hæmaturia, but when this passed away the albuminuria remained. The patient died, and I throw on the screen Bright's picture of his kidneys, and you can see the granular condition and the capsule that had to be torn off. Note the changes in the tubes and in the section of the kidney that the cortex is shrunk. And here, passed round, is the kidney from one of his other 23 cases, and you will see it has all the characteristics of an ordinary case of Bright's disease. That specimen is over a century old.

Bright's next communication on the subject was in 1833, in his Gulstonian Lectures. For them he had had the advantage of team work, for his friends Barlow, Tweedie and Rees had helped him in the examination of a great number of cases, namely, 296. He gives an account of them.

His next contribution to the subject was in 1836, in which he published two papers in Guy's *Reports*, in which a hundred cases are recorded. I want to give you, in his own words, how he described this disease in his last paper, that is to say, when he had had some 20 years' experience of it. Speaking of the patient he says: He finds the excretion of his urine greatly increased, or he discovers that it is tinged with blood; or, without having made any such observation, he awakes in the morning with his face swollen, his ankles puffy, or his hands œdematous. Already his urine contains a notable quantity of albumen; the pulse is full and hard, the skin dry; he often has headache, and sometimes a sense of weight or pain across the loins. He may improve a little, but his countenance soon becomes bloated, headaches occur with greater frequency, then there is vomiting, a sense of lassitude, weariness and depression stealing over him, the swelling still

increases, the urea in the urine is diminished, that in the blood is increased. He gets better, but soon worse again, and then the lungs become œdematous and he becomes comatose. Or again, if he tides over this, an acute attack of pericarditis or peritonitis supervenes, his headaches still get worse, his vision is indistinct, his hearing is depraved, he is suddenly seized with a convulsive fit, he becomes blind, and he dies. Bright says that if you have a patient who shows this series of symptoms you will always find the kidneys diseased.

Notice that there is no single symptom of Bright's disease left out, even as we know the disease to-day. And, furthermore, no symptom that Bright mentioned has ever been shown to be incorrect. Nothing has been added to Bright's description of over a century ago, except such details as come from the use of better instruments. For instance, he knew these patients might be blind; we know why, because of the ophthalmoscope; he knew the blood pressure was raised, we know how much because we have various instruments for recording it. He then discusses the treatment, and there is very little in what he says which does not hold good now. He tells us that, as far as he has observed, diaphoretics are incapable of curing the disease, that it cannot be sufficiently impressed that anasarca is only a symptom, and the best way of dealing with it is by acupuncture. And here he warns us against possible septic trouble; we know that œdematous tissues are very liable to that. He is also insistant on keeping the patient warm. He says a few leeches will relieve the headache; he is opposed to the use of mercury. If aperients are wanted he prefers elaterium, and with regard to diuretics he observes that none are any good except digitalis. The great rule, he says, is to avoid any food which deranges the stomach, and most of the patients can take milk well. This admirable account of treatment is still that of our text-books.

What I want to impress upon you is Bright's wonderful power of observation. Here you have all sorts of symptoms: circulatory symptoms, a large heart, high blood pressure, cerebral hæmorrhage, you have œdema, albuminuria, peritonitis, pericarditis, vomiting, œdema of lungs, bronchitis, convulsions, all of them mentioned by Bright; such a medley of symptoms that you would think nobody would find his way about them. Bright unerringly says that when those symptoms occur you will find that the patient has kidney disease. It is, to my mind, one of the masterpieces of medicine, this wonderful observation. Put yourself in the position of its being quite unknown that the kidneys would be found to be diseased and imagine yourself before a hundred people, some with bronchitis, some with pericarditis, others with high-tension pulse, others with the many symptoms in varying degrees, and your being able to draw them all into one net and say, "All those people have something the matter with their kidneys." It was, I say, a perfect masterpiece of observation during life combined with prophecy of what will be found after death.

Bright still went on working at the subject; the team work became, I was going to say, fast and furious. Such was the enthusiasm at this hospital excited by Bright's researches that, with the consent of his colleagues, he was given entire charge of the two clinical wards for six months, and the beds in them were filled by nothing but cases of Bright's disease. The results of his observations on these patients were published, and they confirmed all that had gone before.

The only criticism I imagine anyone could level at me for saying how wonderful all this was is that you might say it was a fluke, that it was by a lucky chance he discovered Bright's disease. It was nothing of the sort. He was one of the greatest observers who ever lived, and to prove this I will give you some other observations of his.

You will find in his "Reports," which I have here, two or three cases in which he noticed that patients had spastic paraplegia. He observed that in these cases the spinal cord was sclerosed, and he gave it as his opinion that there must be an association between the two states of affairs. Again, he records that sometimes patients had what looked like epileptic fits, but at the post-mortem he discovered organic disease. He mentions the case of a man who had an aura which began in the right calf; this aura always ushered in fits. Bright found the man had a tumour in the cortex of the left side of his brain. He observed several of those cases, and he gives it as his opinion that you can predict that there will be an organic lesion in these cases, of what we now call Jacksonian epilepsy. Bright went further, for he noticed that while, as a rule, it is an important point in diagnosis that, if there is an organic cause for the epilepsy, consciousness is not lost, yet in a few cases consciousness may be lost, even when the epilepsy has an organic cause. He also noticed that some of his patients with cerebral hæmorrhage had hemianopia, and he winds up his account of the nervous system by saying that he believes that wherever there are symptoms of organic disease in the nervous system you will, if you make a careful post-mortem examination, find damage to some nerves, or the brain or the cord is the cause of them. He was, in fact, the pioneer of the whole doctrine of cerebral localisation.

He was the first person to describe the mitral murmur in chorea. But his most fruitful investigation next to that on the kidneys was, perhaps, done in the domain of abdominal disease, and his work on this was reprinted as a separate book under the editorship of his pupil, Barlow. Barlow, speaking of hydatids of the liver, says: "It is but due to the memory of Bright to state, though without any desire of imputing plagiarism to more recent Continental pathologists, that the description of acephalocyst hydatids is altogether original, and certainly an anticipation of similar observations which have since been published in Germany." All our knowledge on hydatid of the liver springs from Bright's work. He did another remarkable piece of original observation in connection with abdominal disease. He says he wishes to call the attention of his readers to the peculiar condition of the evacuation, a portion more or less assuming the character of an oily substance resembling fat, and he says that when that is found in the fæces the patient has pancreatic disease. Some of his patients with pancreatic disease he notes had glycosuria. He noticed that when a patient had febrile jaundice with an excessive tendency to hæmorrhage the liver would be found to be very small, soft, flaccid, mottled with dark-red liver colour and stone colours. That is the first description of acute yellow atrophy of the liver. He was the first to describe chronic proliferative peritonitis, in which the mesentery is shortened and the intestines drawn back and compressed, and he gave a detailed account of its morbid anatomy together with the symptoms which you know from your observations in the wards. He was the first person to describe broncho-pneumonia and collapse of the lung with whooping-cough, and he recommends oxygen for the pulmonary conditions.

The short sketch I have given shows how great a man he was. The lesson which I think we learn from him is this: Observe everything. It has been said that for a hundred people who can think only one can observe. That being so, it behoves us to cultivate observation to the uttermost of our power. Observe your patient in every possible way—with your hands, your eyes, your smell, by means of all the various instruments, such as the ophthalmoscope, the laryngoscope, the stethoscope. And when you have completed your observation say to yourself: "As a result of this observation what do I think I should find if the man were killed at the present moment and I were able to examine him fully after death?" When you have done that you have not really made the diagnosis; in Bright's words you have only correlated the symptoms in life with what is found after death. The diagnosis is not made until you know the cause of the disease. In some instances this has been found—for example, in tubercle or typhoid, but in others—for example, in cancer—it has not been found. This is the lesson from Bright: do cultivate the power of observation. In him it was exalted to such an extent that it became genius. And, fortunately, in him is was associated with the power of correlation of what he observed during life with what he found after death.

Now as to what has happened since. The most striking thing about Bright's disease was the albumen in the urine. He laid stress on this, but nowhere in his writings does he say that albumen *per se* is of great importance, unless associated with other symptoms. The profession, however, seized on the albumen and got hold of the idea that everybody who had albuminuria was a doomed person and had Bright's disease. Bright never said so, he only said that albuminuria and other symptoms indicated Bright's disease. Gull for a long time taught that albuminuria itself was not of great importance, and so this was common knowledge here, but it was a paper published by Moxon in the Guy's *Reports*, pointing out that healthy youths frequently had albuminuria, which gave the death-blow to the idea that mere albuminuria indicated renal disease.

The next thing which troubled the profession was a very difficult matter, and that was the problem of what might be called the unity of Bright's disease. To make the position clear to you I will recount the history of the similar problem in relation to phthisis.

During nearly the whole of the 19th century a great controversy was raging as to the unity of phthisis. In the post-mortem room you will see a case dead of phthisis—the lungs solid, breaking down here and there into cavities. Next day you will see a case of phthisis in which there is nothing like that, but chiefly fibrous tissue in the lungs. It was, therefore, not surprising that some people said that Lænnec was wrong when he said that phthisis was one disease, and that many divisions of phthisis were made. So much was it divided up and so little could they understand it that students were bewildered; it was even argued by the histologists that there were two kinds of tubercles altogether distinct, the yellow and the grey. Turning to the clinical symptoms, they, too, seemed to be derived from every organ of the body. A patient with phthisis may have a high temperature, a rapid pulse, extensive physical signs, and sweats; another patient may have none of these symptoms. So it is not surprising that a number of people said there were at least two types of phthisis. Furthermore, they could group the symptoms more or less according to what

would be found post-mortem. And they were able to say: "This patient, from his symptoms, and from his physical signs, has got a solid lung; while this patient, from his signs and symptoms, leads us to expect a lung which is chiefly fibrous." Histologists did not help. Fagge, in the first edition of his "Medicine," gives up the histologists, as he found that the most eminent of them were at variance with one another. But with the discovery of the tubercle bacillus the unity of phthisis became established, and Lænnec's view, a century old, that phthisis is all one disease, was put on a sure footing.

The problem is much the same with Bright's disease. Wilks first attacked it. Up to his time it had been largely the doctrine that it was one disease. He pointed out that there were two main varieties—one in which the kidney is large, chiefly tubal nephritis; the other in which the kidney is contracted and the cortex is diminished, what we should now call contracted kidney. And he reminded us that in tubal nephritis there was much œdema, much albumen and the patient was pale, and that at the other end of the scale there was the patient with high blood pressure and chiefly cardiac symptoms, not much œdema and not much albumen, whose kidney would be found to be contracted. That looks as if there were at least two different varieties, and some writers say there are ten or a dozen. But you can arrange a series of kidneys in a row, so that in the middle there are many which it is difficult to place in one class or the other, and you will find that with many living patients it is doubtful into which group they should go. I am not competent to go into the histology of the matter, the papers which have been written on it number over a thousand. There is, for example, the question of nephrosis, which is supposed to be a degenerative change, but the last summing up is that there is no need to postulate a separate condition of nephrosis.

The problem is the same in renal disease as it was in phthisis; indeed, there is some similarity between the diverse post-mortem findings in the two, but until we know the cause we cannot say whether there is one Bright's disease comprehending all the cases, or whether we have to split the cases up into several diseases. But, for practical medicine, putting aside scarlatinal nephritis, the nephritis of pregnancy and possibly some other examples of nephritis, you have the two main groups, as taught by Wilks, although several cases will be found intermediate between them.

The next thing that interests us is that, in 1872, Gull, working with his friend Sutton, published a paper which startled the medical world very much. They took the view that chronic Bright's disease was a wide disease of the whole system, and said that, in patients who die of chronic Bright's disease, if you examine the minute vessels such as those in the pia mater, you see in them a fibrosis whi h spreads to the tissues immediately around, and he and Sutton thought that mostly the change is first seen in the vessels of the kidney and that the changes in them lead to the granular kidney; that this state of the vessels in various parts of the body leads to hypertrophy of the heart and the high tension, because the blood cannot get through. This doctrine of arterio-capillary fibrosis, as Gull and Sutton called it, certainly accords with many cases that we see.

There were two Guy's men, Galabin and Mahomed, who observed the tension of the pulse in Bright's disease for their theses at Cambridge. Mahomed in particular went further than Gull and Sutton, and said that before there is any arterio-capillary fibrosis at all the blood pressure is raised; that because it is raised the arterio-capillary fibrosis in the minute vessels follows; that then there is hypertrophy of the heart, and when the renal vessels are affected the kidney changes follow. That, you see, is really the first description of what is now called hyperpiesis, because, so long as all that is the matter is that the pressure is raised, the patient may be said to be suffering from hyperpiesis. Because of the raised pressure the heart becomes enlarged and the pulse is hard. If the patient dies in this stage he remains a case of hyperpiesis, and never becomes one of arterio-capillary fibrosis or, later still, one of chronic Bright's disease. So we have got several clinical groups, of which the chief are that with the large white kidney, much albumen and chronic tubal nephritis, the small contracted granular kidney group, the arterio-capillary fibrosis group, and the hyperpiesis group in which first the blood pressure is raised.

But that does not end all that has been done at Guy's. Probably the most fruitful investigations on the pathology of œdema were done by that world-famous physiologist Starling, who was my house-physician and became lecturer on physiology here. It was he who insisted on the fact that œdema cannot occur unless the permeability of the vessel wall is in some way altered. Other research on œdema has been done here. The whole subject of the influence of sodium chloride on it has been reviewed by Dr. Hurst, and he conducted some original observations on the matter. And I cannot resist the temptation to point out that Hopkins, who is the present President of the Royal Society, when at Guy's first taught us the correct way to volumetrically estimate the uric acid in the urine.

Such excellent work is being done here on the treatment of Bright's disease that I will say nothing about it for you can learn first-hand, but I should like to point out that the teaching here has always been strongly opposed to the pernicious plan of giving the patients nothing but milk. Forty years ago most patients who had a little albumen in their urine were put upon milk; they were kept on milk alone for years. What a miserable existence! A milk diet does not give you enough calories to live by. If you give nothing but milk the kidneys, like other parts of the body, will starve, and starved tissues are not likely to recover from disease.

Up to 30 or 40 years ago cases of bacillus coli in the urine were completely missed. Some were set down as kidney disease. But we know now that the trouble is bacillus coli pyelitis. I remember the case of a young woman, about six months pregnant, who was anæmic and had a hæmic murmur, and whose urine contained albumen and swarmed with bacillus coli. She had a little œdema in her ankles and a high temperature. She was seen by a distinguished physician, who entirely missed the bacillus coli infection and, mistaking the hæmic murmur, said she had malignant endocarditis and must die. She got well and the pregnancy proceeded to full term. That physician would not have made this serious mistake if he had read Mr. Bellingham-Smith's paper in the Guy's *Reports*, for to him is due the credit of being the earliest in this country who pointed out the symptoms and the characteristics of bacillus coli in the urine and taught us how to recognise it.

I hope I have shown you, gentlemen, that we have much to be proud of in connection with the subject of Bright's disease as regards the investigations that have been carried out, and, I am glad to add, are still being carried out, in this hospital.

Christmas in the Wards

Naaman

THIS year, in spite of the "no concert" scare, Naaman had two concerts, one during the visitors' tea on Boxing Day and one on the following Monday.

At the first of these the patients and their friends were entertained by Mr. Zieve, a Guy's student who was then a patient, and his violin, his accompaniments being played by Nurse Buchanan. His playing was delightful. Strangely enough, during the next few days most of the patients were discharged well, in spite of the amount of food which was consumed during the afternoon, and also strangely enough, no new patients were admitted on account of it.

How far Mr. Zieve's playing was responsible for the rapid recovery of most of the patients it is difficult to estimate. Some may have been suspicious of a repetition, but we are sure that most of them must have been quite innocent of any such fear.

In addition to Mr. Zieve's healing strains, a party of Niggers, with Mr. de Gruchy's usual accompaniment on the piano, gave an alcoholic rendering of some of the Niggers' songs, much to the delight of the patients and their friends. There were also several songs by Mr. Wright, one of the dressers.

The second concert was on the 28th, when we were entertained by Mr. J. Shinbaum of the B.B.C. Orchestra, and his string trio, and by Major Cartwright and his cinematograph machine, with its alternating drama, patter and American humour.

Mr. Zieve also did his stuff again most nobly, and to all this was added Sister Naaman's gramophone, which really did put in some good work.

We must particularly congratulate Mr. Shinbaum and his friends on the excellence of their performance, to say nothing of the violinist, who completely spoiled the patients' chances of sleep that night by recounting the most awe-inspiring ghost story as a finale.

We are grateful to all these people for helping to distil the Christmas spirit.

Eyes

THE Christmas Concert in Eyes, always a popular event, was held this year as usual, despite the rigorous economy prevailing everywhere. It was made possible by the kindness of a small concert party which worked unsparingly and with great success to entertain a large audience.

The show opened with songs at the piano, which were received with much applause. Followed then a cinema film of the type which used to fill the silent picture theatres, a drama of the wide, open spaces with the hero shooting a most satisfying number of villains. This was accompanied by music on the gramophone, which, whether by luck or good management, was always admirably suited to the story. After the heroine had faded into the hero's arms to the tune of "Roll away, clouds," the concert party staged a cabaret which grappled most nobly with the stage difficulties and entertained the audience vastly.

Then we all had an excellent tea whilst the party refreshed itself for renewed efforts. When everyone had eaten all that they could lay hands on and when certain of the youngest members of the audience had been quietly removed, Major Robinson, the chief organiser of the show, gave us a few character sketches which were among the most popular of all the numbers.

Followed more songs and sketches and another film, this time one of the kind in which, amid great enthusiasm from the audience, everyone smacks everyone else in the face with kippers or pork pies. The cinema was a good one, quite free from the flicker which mars most amateur machines. All thanks to its operators. This time the film was accompanied by music on the piano in the grand old tradition. When it was finished the pianist demonstrated that he could play other stuff than cinema music and was a raconteur as well.

Finally, after a few more turns, the concert was concluded by two songs from the indefatigable Mr. Williams.

Warmest thanks are due to Major Robinson and his friends for an excellent entertainment.

Luke and Lydia

THE Ward Concerts in Luke and Lydia were held on Monday, December 28th. With them were combined the annual teas to the patients' friends. Both concerts were given almost entirely by members of the Concert Artists' Association. We are greatly indebted to Mr. Sydney Warwick, the secretary of the Association, for collecting such a bevy of talent and persuading them to come down to Guy's so soon after the Christmas festivities elsewhere.

No details of the items are obtainable, so that the individuals must remain unnamed. We believe that the most popular event was the Marionettes, who completely took Luke by storm. We have rather vague memories of a sweet young thing warbling about the chilliness of the Eskimoes. Perhaps we dreamt all that. But we certainly had a most entertaining afternoon in spite of rival attractions in the form of rough games in theatres.

Children's

THE Annual Children's Party was held in the Children's Ward on Monday, December 28th. The ward was beautifully decorated, and the children who arrived to hear the concert and see Father Christmas were, we venture to think, some of the most charming in London.

The cots were prettily dressed, and one fortunate child was given a shawl presented and worked by Her Majesty the Queen.

The programme opened with a choice selection of nigger songs, for which we have to thank some half-dozen Residents and their ever-present accompanist, Mr. Charles de Gruchy, who turned up to start the concert going. This was followed by two musical monologues admirably rendered by Mr. Littledale, entitled, "The Nipper" and "Knocked 'em in the Old Kent Road."

Next we had a most popular item which seemed to swell the numbers of our audience considerably —by this we refer to tea, a really excellent one, and for which we have to thank Sister and the Nursing Staff.

The concert finally closed by Father Christmas distributing presents, and everyone, including the Matron and Dr. Hampson, who we were fortunate to have with us, received at least one present each.

Mr. Littledale, who distributed the presents, was as near the mythical Father Christmas as one could wish, and his perilous entry into the ward through a window was, we are glad to say, safely accomplished and without accident.

Finally, we should like to thank all those who helped to make the Children's Party such a great success.

Lazarus and Evelyn

ONCE again the winter gloom surrounding the surgical block disappeared as those ever-helpful friends of the Hospital, "The Concert Artistes," made their way up the stairs to Lazarus and Evelyn Wards.

In a quiet voice, but with a very broad smile, Mr. Harry Rogers, who worked hard all the afternoon, announced the artistes, and the fun commenced.

How we laughed—patients, nurses and students —at the humorous songs of Miss Bertha Willmott, Mr. Walter Todd and Mr. Will Deller, and again at the amusing wisecracks which fell from the lips of Mr. Fred Curtis, Mr. E. Elliot, Mr. C. Wren and Mr. Bert Finsbury. Miss Hilda Seymour, Miss Dorothy Davies, Miss Lillian Mann and Miss Lena Copping sang with a sympathy which pleased us all, whilst Mr. Fred Yaemans and Mr. Harry Howard were equally fine.

How the audience appreciated those marionettes, not only the children but the grown-ups also, and for this we feel deeply indebted to Messrs. Bob Wilkin and Mr. Dudley Chant. At the piano we saw Mr. Oscar Frand and Mr. Cyril Weller appearing time and time again with an untiring energy so typical of the associations claiming them

as members. To add to our enjoyment Sister Lazarus and Sister Evelyn together with their nurses spared no effort to provide an excellent tea, and we feel that a hearty vote of thanks is due to them.

Not until 7 p.m. did that merry band of entertainers cease to amuse us, and when at last they said goodbye midst much applause, we realised that we owed them a debt of gratitude almost beyond expression.

The Niggers, 1931

RESIDENTS of the College were early astir on Christmas morning, and the breakfast table saw a heterogeneous collection of persons. Thus a gaudily-dressed toreador rubbed shoulders with a rather faded Elizabethan gentleman at one end of the table, whereas at the other end a Cossack made vain attempts to acquire the marmalade from a Court jester. At this stage the unpainted members of the nigger troupe were recognisable. Later, having spent three minutes in the hands of the irrepressible Herbert with its resulting barrage of grease-paint, they felt better able to face the ordeal of the day. Moreover, there were those present who encouraged some of the Niggers at this early hour to partake of liquid refreshment and restrained others from spoiling the movements of their vocal chords by over-indulgence.

At 10.30 a.m., in response to the frequent admonishments of Massa Johnson, a rather half-hearted band of Niggers duly presented themselves at the Colonnade steps before the camera. Punctually at 11 a.m. the silence of the Park was broken by the opening chorus as they filed into Eyes for the commencement of their round. Here we were treated to a piscine beginning, on which Rogerson waxed eloquent over the habits of certain of the more common bivalves. To the tune of " Cockles and Mussels " he bewitched the audience with the following parody :—

COCKLES AND MUSSELS

I once had a patch, sir,
That I used to scratch, sir,
So I came up to Guy's to the skin doctors there.
As they gaze long and gaily
At skins dry and scaly,
Crying, " Pediculosis, alive, alive O ! "

They pulled out a hair, sir,
And looked at it there, sir,
To see what it was that was making me itch.
Was it fungus or favus,
Or a scaly big clavus ?
No ! 'twas pediculosis alive, alive O !
Alive, alive O ; Alive, alive O ;
Crying, " Pediculosis, Alive, alive O ! "

Next Burtenshaw, in the role of that world-famed and much-maligned character the British workman, whistled vainly in the dark for an unnamed someone. The Clinicals then informed us in no uncertain manner of their heart's delight, which we gathered was not unconnected with Sister and her hirsute apparel.

Queen was the next port of call, and here Peckham temporarily forsook his big drum to give an appreciative audience a realistic study of a man fresh from his triumphs at Monte Carlo. He was followed by his obstetric colleagues, Plummer and Southwell, who told us of things military and how they hoped to live up to the fine traditions of their fathers and the British Navy.

Mary was next visited, and here our appetites were whetted, if such was necessary, by an all too small helping of " H.P." Sauce. Schofield followed, who put forward certain pertinent questions concerning the nocturnal wanderings of a member of the fair sex. At this stage Sutcliffe could no longer be restrained, and he burst into song about the additions to modern medicine in the following words, to the tune of " It' not you " :—

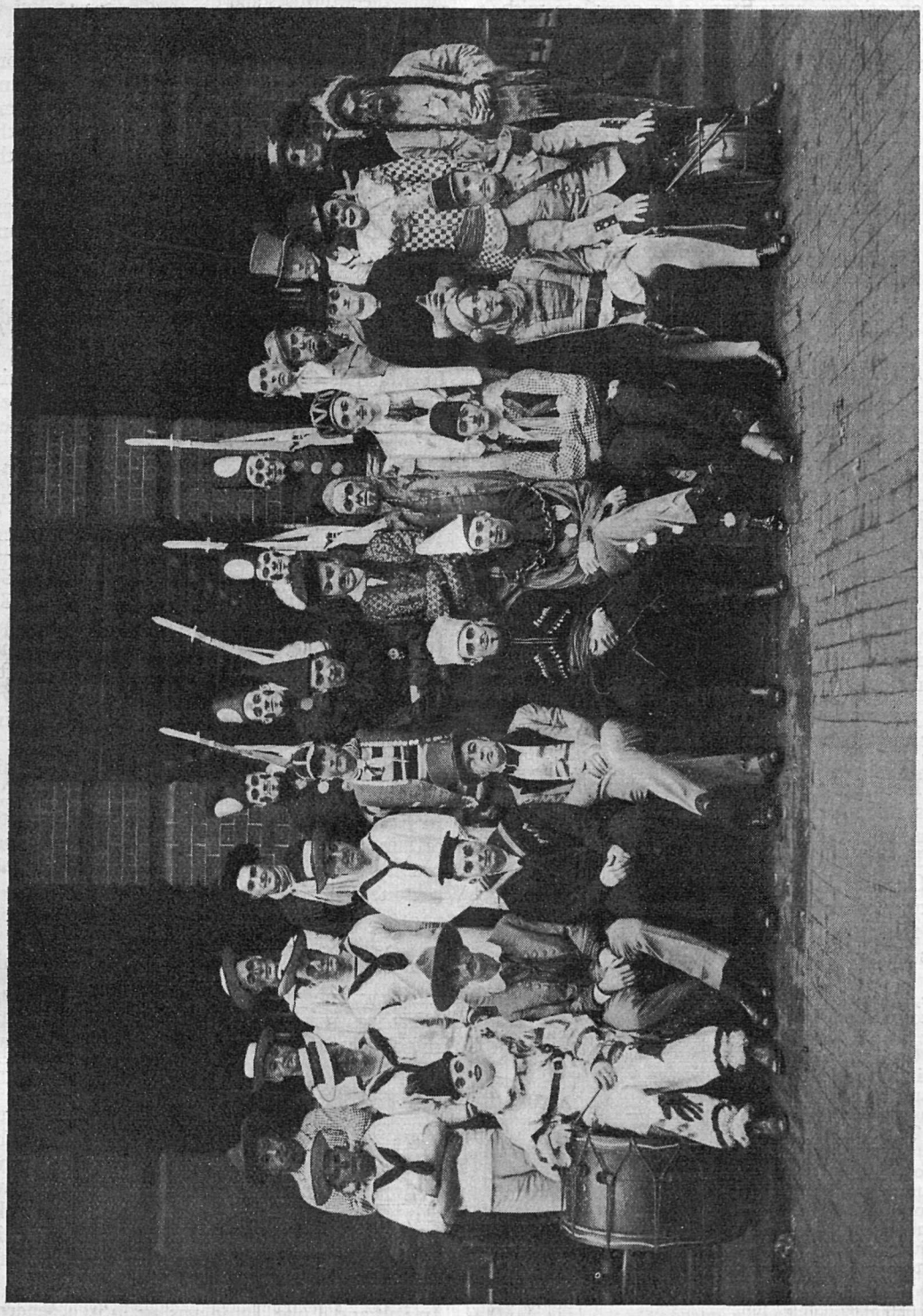
IT'S NOT YOU

Thank Heavens, modern medicine
Has had some new addition,
For things before were an awful bore
To the H.P. and Physician ;
But if there's any doubt now
About the diagnosis,
The H.P.'s sent, with the oxygen tent,
And in it the patient reposes.

Can't you see ? He's gone blue ; he's gone blue.
He's an awful sight ; he's gone blue.
Oh, his nose ! It just shows, cyanose.
Oh, how cold he grows ! He's gone blue !

Long years ago humans took a monkey
And put it in a cage.
Now we just take a patient
And try his CO_2 to gauge.
But he's gone blue ! What a shame ! It's a shame !
Still it's all the game.
He's gone blue !

The Niggers were now beginning to show wear and tear, and at this stage they refuelled in the Clinicals' room. After this short interval they burst boisterously into Clinical, and the Clinicals, maritime both in appearance and behaviour, delighted a crowded ward with their inimitable renderings of the following refrains, "Would you like to take a walk," " My heart's delight," and



THE NIGGERS, CHRISTMAS, 1931

" The Queen was in the parlour." Needless to say, each of the above tunes was complete with a parody pungent in local colour.

Descending to Stephen, Southam, perhaps rather unnecessarily, repeatedly enjoined the audience to smile with him, and professed his unabated faith in this old world of ours. Schofield, with monocle hovering betwixt eye and floor, revealed himself in an optimistic mood and told us of the kind way he treated his babies :—

THERE'S ALWAYS TO-MORROW

If your babies are too pale, glucose is what they need,
Four little teaspoons in each feed.
If their muscles are too slack and their knees turn in,
It's only two-and-six each tin.
Day by day their thin little legs will fatten,
Till at last they reach the Cameron pattern.

Chorus—

Take glucose each morning and glucose each night,
With Hampson and Cameron to keep them all right.
For there's no other medicine, I'm sure, is half so good.
The H.P. also takes it, but that is understood.
At evening when Sister has turned out the light,
She takes her little teaspoon to keep her all right.
So now you see the reason the baby doctors here
Are always so full of cheer.

He was followed by Sutcliffe, who continued on his amorous theme, and in a tuneful way informed us of an appointment he had made with a certain celestial being.

Buoyed up with the prospect of Christmas dinner and Christmas cheer in the very near future, the Niggers then made a spirited entry into Addison. Here Steward told us of the happiness that was his, but which at that moment his looks belied. He was followed by James, who infused his quota of sunlight into the already hilarious proceedings. Four O.P.O.'s, neighing loudly as one, told us of their questionable exploits in the Front Surgery in the following words, sung to the tune of " The King's Horses " :—

Glance, along the hall ;
They come along, your doctors all,
For they're the four, on whom you call,
Up here at Guy's.
Smart in their white coats,
The Surgery staff, the Borough dotes ;
They ask your woes, make hasty notes—
The O.P.O.'s.

The Borough mothers, the Borough brats, come to the Surgery to have their weekly chats.
The Borough mothers, and the Borough brats.
Some are neurotic, some are ill ;
Some just come up for a rhubarb pill ;
Never to recover, always to be ill.
Mrs. A is pgy.,
Mrs. B has cholecysti,
Some of them have ery.,
And they've all got B.P.'s that are much too high.
The O.P.O.'s work from nine till six,
Treating the arthritises and diagnosing tics,
Giving them the No. 9 or the 606.

The Niggers now dispersed in various directions for some much-needed lunch and refreshment, and when they reassembled in the Out-Patient Hall at 2 p.m. they were almost equal to the unequal competition which they held with the vociferous children of the Borough.

They now crossed the Park to Dorcas, where that throaty trio, Williams, Burtenshaw and Bloom, informed us, rather unnecessarily, that they were here again. Williams, who sang next, was really worth while listening to, whilst Stone advised us to do several things we should never think of doing and leave the rest to Nature.

In Martha, Chamberlain wondered if Louise really did love him, whilst Lyne, who followed, completely shattered the sentimental atmosphere by his account of a certain female's addiction to short skirts. Sharp, who sang next, told us of his hitherto unknown qualities as an ardent and persistent lover.

At this stage there was a short interval whilst the Niggers, some of whom were showing signs of fatigue, prepared themselves for an onslaught on the upper stories of the Surgical block.

However, when they appeared in Evelyn they seemed to be standing the strain well, and after a heart-shattering outburst by Chamberlain, Lyne gave us all an open invitation to drink with him. The four O.P.O.'s, soldiers all, very much out of line, sang in discord a song which we were quite unable to recognise.

In Evelyn, Greaney, Todd and Sharp entreated a certain pretty baby to pardon them for their unseemly familiarity. They were followed by Wharton, who, becoming rather morbid, told us of a sad and mournful episode in his career. Carlton, however, brightened things up when he told us of his adoration for a certain lady of Spain.

There was now an interval for " tea." Although the day was not hot, it was noticeable that many of the Niggers preferred to take some cold beverage out of a bottle rather than a nice, hot, refreshing cup of tea.

On entering Christopher and Naaman the concert Party was still intact, and remarkably fresh after so long a journey. Here Bloom opened the proceedings with a rendering which was highly technical. Williams again showed us that the Niggers had some real vocal talent, whilst Dan Stone, who followed, was still throaty, despite a prolonged gargle at tea.

In Job and Luke, Lyne was again in a generous mood. Clark told a distressing tale about his

canary and amused everybody with the following parody :—

MY CANARY'S GOT CIRCLES UNDER IT'S EYES

According to the modern press,
All this world is in a mess,
But Guy's goes on just as it did before.
Up to nineteen-thirty-two,
When we start in feeling blue.
I'm going to tell you why we're sore.

Since Frankie Steward decided to go,
All his poor sisters are full of woe,
And Sister Luke has got circles under her eyes.
Although his rounds take up most of the day,
Supposin' we put it another way,
His H.S. has got circles under his eyes.
His only vice when out on a spree,
Sardines—he can't stop eating.
It wasn't often he'd stay to tea—
Generally had a meeting.
All this is making me terribly sad,
But I hope you won't think I've been bad,
If Sister Luke has got circles under her eyes.

Still going strong, the Niggers entered Lazarus and Cornelius with a hoarse yell, and here the audience found that Chamberlain was still doubtful about his Louise. Todd was in his element when he sang " Drink, brothers, drink," whereas Lyne was rather subdued when he again told us of Elizabeth's troubles.

In Lydia, Siggers complained that many of his talents were wasted. Clarke, suitably ataxic, revealed to us that he was an ardent supporter of the " Hike to Health " movement. We feel that he must have gargled too much at tea. Wharton, equally ataxic, and with many irregular and choreiform movements, explained to us the various reasons that were making him bubble over with love. We believe every word he said.

Entering Astley Cooper with unexpected hilarity for such a hard-worked party, the Niggers proceeded to show that what they lacked in vocal talent they more than made up for in stamina. Clarke, a little more ataxic, and rather bloodshot in the voice, again croaked about his canary. Siggers, except for a slight lapse of memory, gave a delightful rendering of " Lazy Day," and added the following parody :—

LAZY DAY

I'm tired of lacerated fingers,
I'm tired of broken bones,
I'm tired of running to the Surgery,
I'm tired of telephones.
I'm tired of gastro-jejunostomies,
I'm tired of playing with colostomies.
I'm tired of taking out appendices,
And here's the reason why—

Lillywhite, as pure as driven snow,
Lillywhite, no one would ever know
That we thought it was inflamed ;
I wonder who will get blamed ?
Lillywhite, I 'spose she'll never know.
Bobby will say, " It's better out, you know."
She will be quite content,
But Nature will resent.
Pain goes drifting away, into a sky of blue.
Some day, say what you may,
They'll be a different hue.
Lillywhite, we hoped it wouldn't be ;
Lillywhite, I'm sure it couldn't be ;
But if there's any doubt,
Let's have the damn thing out.

The O.P.O.'s, true to the traditions of the Army, made a brave last stand, and presented " The King's Horses " and parody with great effect. Massa Johnson now concluded the proceedings by again registering disappointment at his relations with a certain female.

The riddles were good and invariably raised a laugh :—

The Clinicals : " Why are all the patients in Clinical fed up with their physician ? "

" Because Dr. Hurst has Knott Mutch Witts."

and—

" What is the difference between a physician doing a round with his clerks and a cow chewing the cud ? "

" The look of interest on the cow's face."—were both well received.

Also Siggers :—

" Say, Massa Johnson, did you know that Mr. Rowlands keeps a snake in his car ? "

" No ; what sort of a snake ? "

" A viper."

" A viper ? "

" Yes, a vindscreen viper."

Taken altogether, it may be said that the performance of the Niggers was consistently good, if not brilliant. Whereas there were occasions in the early part of the day when the choruses were rather thin, this was made up for by an improvement in the afternoon and by an exceptionally strong finish. Great credit for the success of the entertainment goes to Sutcliffe, who put in an enormous amount of hard work in organising practices, and who, as Massa Johnson, was superb. Nor must we forget Siggers on the side-drum and Peckham on the big drum, for they worked hard the whole day. Also to de Gruchy the Niggers owe a great debt of gratitude, for without him they would have been lost. Finally, Bishop, the man behind the scenes, did heroic work in keeping the Niggers to their time-table, rescuing stragglers and providing necessary refreshment at suitable intervals.

Some Cases of Excessive Calculus Formation

By C. de V. Green

MR. CHAIRMAN and GENTLEMEN,—In presenting this communication on Excessive Calculus Formation it may, at the outset, be advantageous to give a very brief outline regarding the conditions which favour an excessive deposition.

As you all know, the chief constituents of calculus or tartar are calcium carbonate and phosphate together with roughly 20 per cent. of water and organic matter. Much has been written on the actual process of deposition of these salts. It will suffice to say that the generally accepted theory is that calcium salts are carried to the mouth in the saliva, where, owing to the fact that the saliva loses some of its CO_2 content, some of these salts are either precipitated or held in suspension by the colloidal constituents of saliva, which, together with the food débris, dead cells, etc., of a gingival trough, form a matrix in which further depositions take place (Prinz). Mr. A. Bulleid has shown that the leptothrix buccalis is always present in tartar, and suggests that the leptothrix forms a good proportion of the matrix in which calcium salts are deposited. He showed that a marginal gingivitis was associated with a rapid deposition of tartar. Some interesting experiments were also performed by him on cats; he inocculated their gum margins with leptothrix, causing a deposition of tartar on their teeth which were otherwise tartar-free.

There are two main classes of calculus, salivary and serumal, and they differ chiefly in matrix and appearance. It was believed, and still is by some, that the serumal type arose from depositions from the blood serum due to inflammation of the gum margins. As it is extremely difficult to prove that this serumal or subgingival tartar did not arise from the saliva, it may be taken as a general rule that both varieties of calculus deposited on the teeth arise from the saliva except in very rare instances (*British Dental Journal*, 1912—Deposition on root of tooth in abscess cavity). It has been shown that calculus as found in the mandibular incisor region generally contains more calcium phosphate than carbonate, whilst the reverse is found in the maxillary molar region.

There are a number of predisposing causes which favour an excessive deposition of calculus, the chief being the lack of oral hygiene. Irregularities of the teeth are also a frequent cause, as is also the case when a tooth becomes functionless. It is also seen that in a condition of acidosis, such as occurs in diabetes where the CO_2 content of the blood and saliva is reduced, excessive deposition of tartar frequently accompanies it. Excess of tartar formation is rarely seen in early life, and Dr. Howe suggests that the calcium content of saliva is increased when body growth ceases or when the subject leads an idle life. Both Black and Bunting, however, refute this idea, and say that gum recession is more likely. Dr. Howe also suggests that active body metabolism controls the CO_2 content of the saliva, and that calcium in the food affects the calcium content of the body fluids. But again Black and Bunting hold that the calcium content of the saliva has no effect on calculus deposition.

The results of tartar formation may be summarised as follows. Stagnation occurs around the neck of the tooth in which food débris and micro-organisms collect. The tartar spreads and the gum margins may be chronically inflamed. The periodontal membrane may be destroyed. An osteitis of the tooth socket may occur, with the ultimate loosening of the teeth.

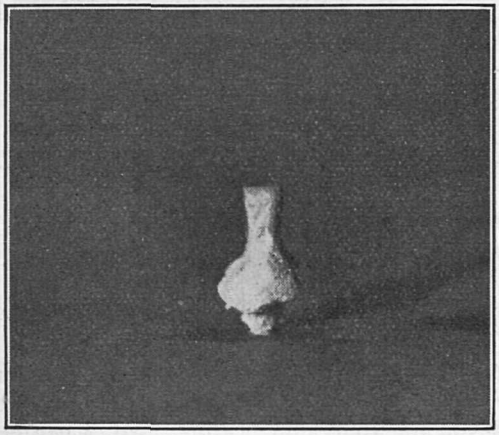
The prevention of excessive tartar formation forms a most interesting study, which cannot be dealt with in this paper since it involves the question of a balanced diet. A few other means may, however, be mentioned briefly, as, for instance, the mastication of coarse foods, the avoidance of excess of food, the regulation of the CO_2 content in saliva (Prinz—sodium bicarbonate), and lastly, the use of a tooth-brush; I place this formidable weapon at the end of the list for fear of controversy. A high polish on the teeth is a great asset. It is interesting to note here that Mr. Messenger sometimes advocates a special diet consisting of the separation of proteins and carbohydrates, the patient is not allowed both at the same meal. I have a student whom I am treating in the Conservation Room for rapid deposition of tartar. Normally he has to be scaled at least every four weeks. He was put on this special diet for a month, but no change in th rate of deposition was noticed. Sodium bicarbonate is now being used as a dentifrice, and a definite improvement both in gum margin and deposition has been seen in 10 days' treatment.

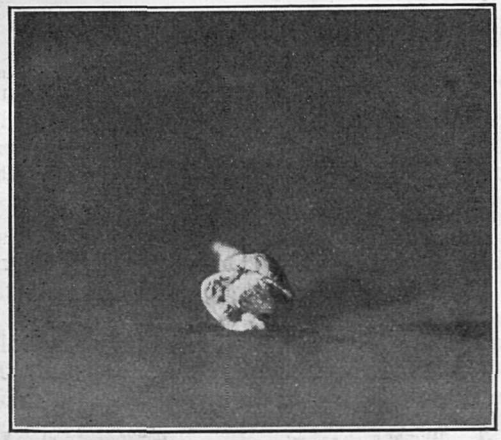
G. V. Black has shown that once tartar has been deposited on the teeth it may easily be removed 6-12 hours afterwards by a brush. After two days it is much more difficult, and it is impossible to remove it with a brush after a week. These experiments were performed without the use of a dentifrice.

During the month of October, when holding the appointment of casualty dresser, three cases of excessive calculus formation came up for treatment. I should like to say here that I found the appointment of casualty dresser an extremely interesting one, and would dispel any forebodings of those who have yet to hold that position. The work one is called upon to perform is very varied, and results are generally very quickly seen, especially clear-clears !

CASE NO. 1

The first case is that of Mrs. L. S., aged 48, who attended on October 14th. It was seen that the mandibular right lateral incisor had neither opposing nor adjacent teeth, was very loose and painful on pressure, and was surrounded with a collar of hard salivary calculus extending over both buccal and lingual gum margins.



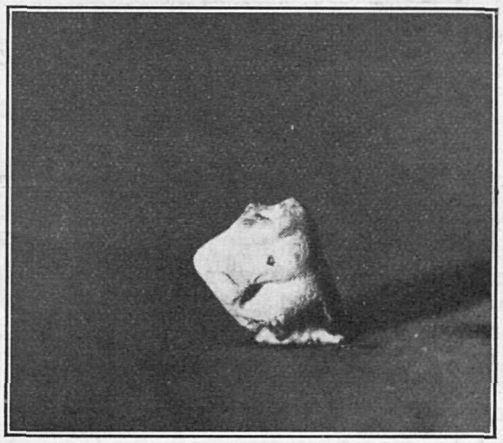


CASE NO. 2

Mrs. E. K., aged 59, attended on October 12th. The patient on examination was seen to be wearing an upper plate over a perforation in the palate and had been doing so since 1904, and during the ensuing period of 27 years had received no dental treatment. The patient gave a very vague history of an acquired syphilis, the chief points being that out of a family of 15 children, three had died soon after birth and that she had had three miscarriages.

The teeth were in a very bad condition, and as much tartar as possible was removed. The patient refrained from the advised " clear-clear " until after the Christmas festivities.

A maxillary right first molar was found to be exceedingly loose and was removed with a small amount of digital pressure. Round this tooth had been adapted a gold clasp from the plate, and it is interesting to see that the calculus formed on the buccal surface of the tooth has expanded the band an appreciable amount ($\frac{1}{4}$ inch), a groove also being formed in which the band fitted.

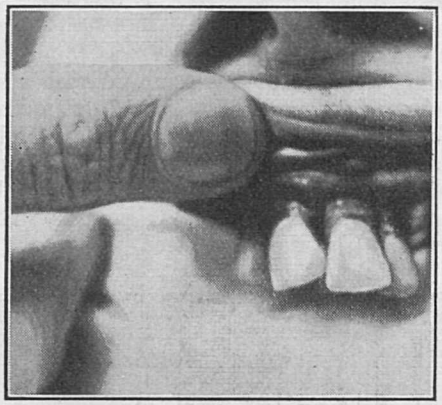


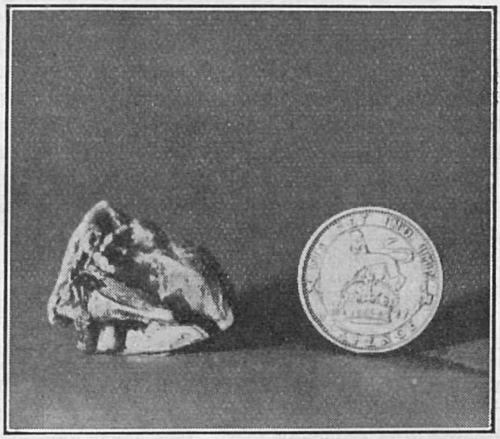
CASE NO. 3

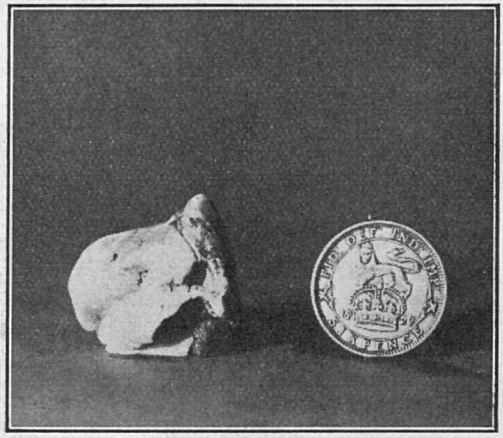
The case of Miss A. F., aged 62, who attended on October 8th, presents a much more interesting study.

The patient looked unwell, very thin and pale, but she assured me that she had never had an illness nor even had any medical assistance for the past 30 years, nor had she ever cleaned her teeth. She was in possession of a casualty card, " Please scale thoroughly and refer." The teeth themselves were in a very bad state. They were covered with tartar, and pus was continually oozing from the sockets. A number of teeth had been lost from both jaws, the patient having performed her own extractions.

In the maxilla, the left incisors and canine were conspicuous with an excess of subgingival calculus. The gums were highly inflamed and infected, and the periodontal membrane was partially destroyed. The tartar was extremely difficult to remove, and a large amount had to remain in position. An interesting point is perhaps illustrated here as the left central incisor which was the more affected appeared to have been exuded from its socket. This is due to a periodontis, as the patient said that normally her incisors were in a straight line.







The mandibular teeth showed a gross excess of salivary calculus, particularly the right second premolar. This tooth had attached to it a large piece of calculus which extended from the crown almost to the apex and as far lingually as the duct of the submaxillary gland. The tongue rested on its upper surface and could not lie on the floor of the mouth, causing ulceration at the point of contact. The tooth with tartar was removed.

I should like to take this opportunity of thanking Mr. Bruce for the photography of the specimens and you for your kind hearing. Mr. Chairman and gentlemen, I thank you.

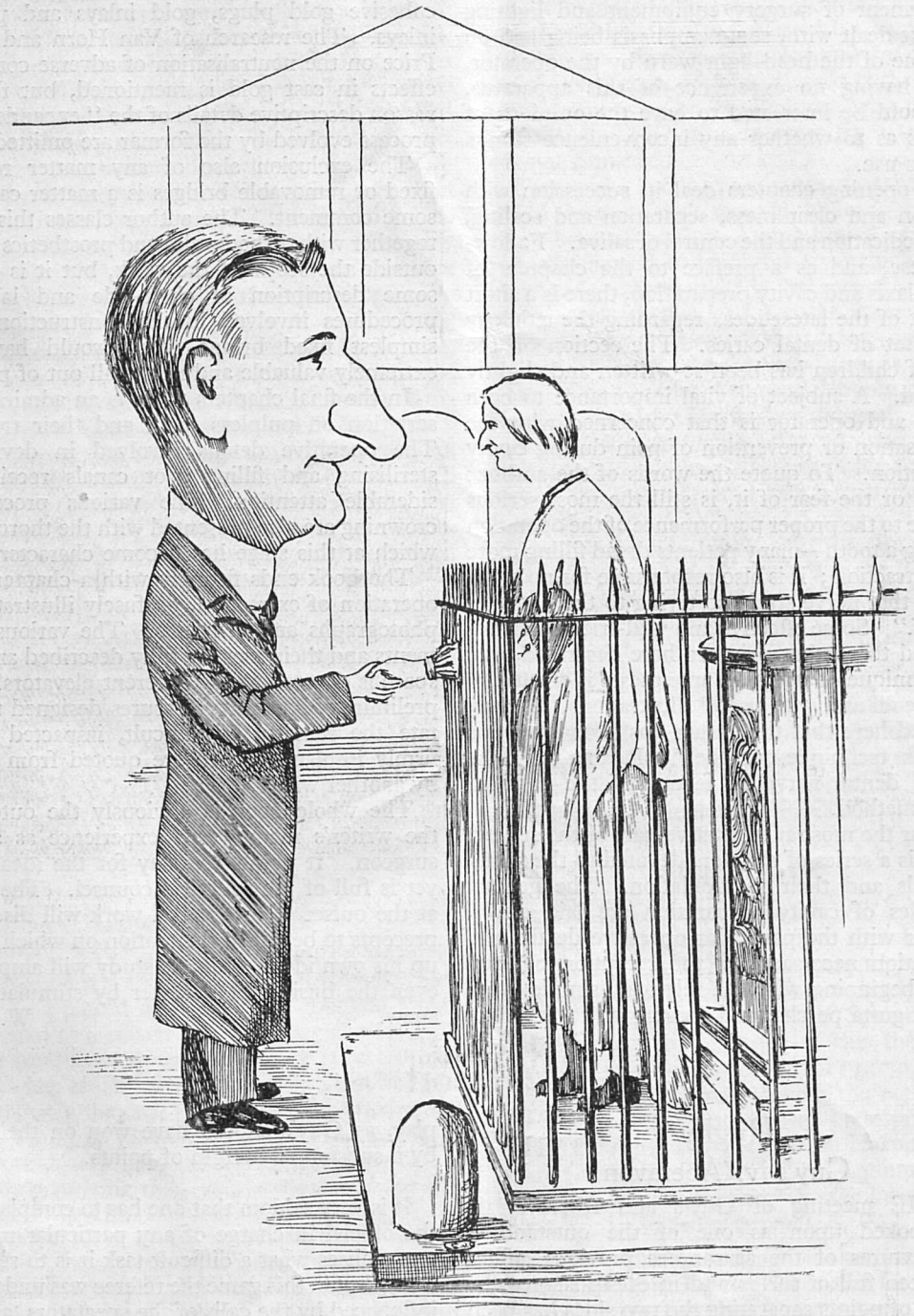
Reviews

Operative Dental Surgery. By J. B. PARFITT, L.R.C.P., M.R.C.S, L.D.S. Third Edition. Published by Messrs. Edward Arnold & Co., 1931. 405 pages. *Price* 21*s*.

THE appearance of a new edition of this book will be acclaimed by all who are familiar with the last one, published nearly nine years ago. Among these, Guy's men will no doubt predominate, as the author is personally responsible for much of the teaching still followed in the Dental School, but there must be many students and graduates of other schools who know the book and value it.

The whole work is again presented in a truly pleasing form. Although it remains substantially the same as regards size and general constitution, there are many additions and the text has been largely re-written.

In a short introductory chapter the author discusses a number of the most important aspects of dental surgery, concerning, for example, the practitioner's attitude to his patient and the vital necessity for his personal efficiency both physically and in the ordered running of his practice. To contribute to this last, the help of a skilled chair-side assistant or operating-room nurse is advised,



GUY'S GRATITUDE

and an outline of the duties to be expected of such a one is given. Problems involving the arrangement of surgery equipment and lighting are next dealt with, some emphasis being laid on the value of the head-light worn by the operator. While having no experience of this apparatus, one would be interested to have the opinions of patients as to whether any inconvenience results from its use.

The opening chapters deal in succession with infection and cleanliness, separation and scaling, ionic medication and the control of saliva. Following these, and as a preface to the chapters of prophylaxis and cavity preparation, there is a short account of the latest ideas regarding the ætiology and onset of dental caries. The section on the teeth of children has been re-written and slightly enlarged. A subject of vital importance to both patient and operator is that concerned with the minimisation or prevention of pain during cavity preparation. To quote the words of the author: "Pain, or the fear of it, is still the most serious obstacle to the proper performance of the operation of filling a tooth—many patients dread filling more than extraction; it is also responsible for no small part of that nerve strain so trying to the operator himself." Some effective and well-tried measures designed to combat pain are here described, and the technique of injection anæsthesia is treated in some detail and with useful illustrations. It may be noted here that the author has abandoned his previous technique for the "blocking" of the inferior dental nerve in favour of the "direct path" method.

By far the most authoritative part of the subject matter is a series of chapters devoted to the filling materials and their manipulation. The general principles of cavity preparation are laid down, together with the particular operative details and preparation necessary for the reception of each filling, beginning with the relatively simple types such as gutta percha, and passing on to the zinc, copper and silver cements, the silicates or translucent cements, amalgam, cohesive and non-cohesive gold plugs, gold inlays and porcelain inlays. The research of Van Horn and Weston Price on the neutralisation of adverse contraction effects in cast gold is mentioned, but for some reason descriptive details of the "expanded wax" process evolved by the former are omitted.

The exclusion also of any matter regarding fixed or removable bridges is a matter calling for some comment. The author classes this subject together with orthodontics and prosthetics as being outside the scope of the work, but it is felt that some description of chair-side and laboratory procedures involved in the construction of the simplest fixed bridge work would have been extremely valuable and not at all out of place.

In the final chapters there is an admirable dissertation on pulpless teeth and their treatment. The operative details involved in devitalising, sterilising and filling root canals receive considerable attention. The various processes of crowning are also presented with the thoroughness which at this stage has become characteristic.

The book ends fittingly with a chapter on the operation of extraction, profusely illustrated with photographs and diagrams. The various instruments and their uses are fully described and much space is devoted to the different elevators. Some preliminary operative measures designed to facilitate the removal of difficult, impacted or very firmly implanted teeth are quoted from a paper by another writer.

The whole book is obviously the outcome of the writer's many years' experience as a dental surgeon. It points the way for the idealist, and yet is full of the soundest counsel. The student at the outset of his clinical work will discover its precepts to be a firm foundation on which to build up his own ideas, while its study will amply repay even the busiest practitioner by stimulating him anew.

W. J. W.

Sport

Rugby

Guy's v. Aberavon

THE meeting of Guy's and Aberavon is looked upon as one of the outstanding fixtures of the season, as previous games have been full of thrills and in each instance the margin of points separating the two sides has been very narrow. The visit of the Hospital to Aberavon on Saturday, December 12th, proved to be another close contest, which the home side won by 4 tries (12 points) to 2 placed goals (10 points). The result hardly indicates the run of play, as Guy's should have won on their merits by a substantial margin of points.

It is very seldom that one has to complain about the official in charge of any particular match, as one realises what a difficult task it is to see everything, but in this game the referee was undoubtedly influenced by the calls of the spectators, and some of his decisions were almost farcical. However, this is by the way, and one must deal with the two sides concerned. Both teams played a fine sporting and open game, and some interesting football was seen.

Guy's had to take the field without their Captain and Vice-Captain, Windsor Lewis and Batchelor, whereas the home side were fortunate enough to be able to call upon their full team. Eustace returned to scrum-half and, although he was faced by Tal Harris, the International, he put up a creditable performance and repeatedly supplied Giesen with the passes which enabled him to start some very fine movements between the threes.

The game had a sensational opening, as within a few minutes Guy's established a lead of 10 points as the result of some particularly fine play by the Hospital backs, which in each instance ended by Johnson scoring tries, for Hogbin to add the extra goal points.

These early reverses surprised the home side, who improved considerably for the remainder of the half, and before the interval they scored unconverted tries through T. Thomas and F. Nicholas.

The second half was very exciting, and early on Johnson, who was always dangerous, nearly added another try for Guy's following a brilliant burst from Aberavon's 25, but the home side saved and, after pressure by their forwards, they registered a try as the result of a fine effort by W. Barnes.

With one point separating the two sides the excitement was intense, and scenes of wild enthusiasm were witnessed when T. Thomas scored another unconverted try in the corner, with only two minutes to go for the final whistle.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, I. K. Thomas, A. G. Johnson; J. E. Giesen, R. J. Eustace; J. P. O'Shea, J. Cunard, R. G. Hunt, I. G. Robin, R. J. Drummond, R. A. P. Hogbin, T. Morgan, A. R. Clarke.

Guy's v. Cardiff

VISITING Cardiff Arm's Park, on Saturday, December 19th, the Hospital were defeated by a placed goal, a penalty goal and 3 tries (17 points) to a placed goal and a try (8 points).

The conditions were not ideal for good football, and, owing to the fog which overshadowed the city earlier in the day, it was doubtful whether the match would be played. The frost had rendered the ground very hard, and, owing to the cold, it was not surprising that the players found the ball difficult to handle.

The meeting of Guy's and Cardiff is always an attractive picture and one which is looked forward to in Welsh Rugby circles; unfortunately, Cardiff have not been seen at Honor Oak Park for many years, but this season they are paying a visit on Saturday, January 9th, when they will be assured of a great reception.

The home side deserved their success in a game which fluctuated until ten minutes from the end, when Cardiff rallied and registered an additional 11 points without response.

Cardiff played exceedingly well in the first half and should have crossed over with a commanding lead, but the defence of the Hospital was excellent, and the only score registered came as the result of a fine opening by N. M. Bowcott, who paved the way for A. T. Thomas to cross for a try, which was not converted.

There was a hectic five minutes after the interval, and in the end Guy's secured the lead. Following a fine bout of passing, Atkins broke away on his own and scored a delightful try, which was not converted. Immediately afterwards, Graham Jones regained the lead for the home side by registering another unconverted try, but Cardiff did not hold the lead for very long, as Ashdown scored after a beautiful run and Hogbin placed the Hospital ahead by kicking a good goal.

A ding-dong struggle followed, and although both sides shirked hard tackling owing to the hard state of the ground, some very interesting football was seen.

Towards the end, Guy's began to tire, and after H. M. Bowcott had given Cardiff the lead as the result of an excellent penalty kick taken from near the halfway line, further tries were scored by T. Lewis and B. R. Turnbull, the latter of which Stone converted.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, H. J. B. Atkins, A. G. Johnson; J. E. Giesen, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, R. G. Hunt, I. G. Robin, R. J. Drummond, R. A. P. Hogbin, A. R. Clarke, T. Morgan.

Rowing

THE London Rowing Club held their Christmas Regatta on Saturday, 19th December, 1931. Guy's Hospital were represented in the Trial Eights race. Unfortunately, G. M. Curtois, the Captain, and J. B. Spearman were unable to row, but in spite of this the Hospital first eight gave a very satisfactory performance.

W. J. Wheatley was stroking the eight for the first time in a race and showed great promise.

The following represented the Hospital: R. J. Pusey (*bow*), T. R. Raw, D. Wigginton, R. W. Pickering, D. P. Walther, A. G. Barrett, J. V. Clark, W. J. Wheatley (*stroke*), A. B. Wayte (*cox*).

Result.—London Rowing Club 1st Eight, 8 min. 48 sec.; London Rowing Club 2nd Eight, 8 min. 54 sec.; Guy's Hospital, 8 min. 58 sec.; London Rowing Club 3rd Eight, 9 min. 1 sec.; London Rowing Club Juniors, 9 min. 10 sec.; London Rowing Club's Old Men, 9 min. 23 sec.

The race was rowed from Hammersmith Bridge to University Stone.

Hospital Information, etc.

Erratum

"A TOUR IN SCOTLAND WITH DENTAL DIVERSIONS."

SIR,—I much regret there occurs a mistake in the above article in the last issue of the GAZETTE.

The Scottish National War Memorial is at the summit of the *Castle* Rock in Edinburgh, not of the Bass Rock, which is in the middle of the Firth of Forth. With many apologies,

Yours, etc.,

H. H. KENSHOLE.

Pass List

ROYAL COLLEGE OF SURGEONS OF ENGLAND.
December, 1931.
DIPLOMA OF FELLOW.

J. B. Blaikley — P. V. Reading
C. S. Hallpike — L. S. Rogers
O. Hooper — G. S. Storrs
E. Jacobson

CAMBRIDGE UNIVERSITY.
Michaelmas, 1931.
THIRD EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.
PART I.

B. Holden — R. A. Ratcliff

PART II.
M. A. Rushton.

LONDON UNIVERSITY.
December, 1931.
M.S. EXAMINATION.
BRANCH I.
Surgery
D. W. C. Northfield.

SECOND EXAMINATION IN DENTAL SURGERY.
PART I.
H. B. Smith.

SOCIETY OF APOTHECARIES OF LONDON.
FINAL EXAMINATION.
December, 1931.
Surgery.
W. Hertzog.
Medicine.

F. Crowther — W. W. Parry
* H. A. T. Wells
Forensic Medicine.
F. Crowther — *H. A. T. Wells
Midwifery.
E. J. Littledale.
* Now holds Diploma.

Change of Address

W. S. Hunt, M.D., Carisbrooke, Bromley Common, Kent.

G. Marshall, M.D., F.R.C.P., 45, Wimpole Street, W.1. *Welbeck* 4010 (unchanged).

Dr. Edith Hope (Radiology, Electrology, Sister Light 1916-19), 62, Wimpole Street, W.1. *Welbeck* 3130.

Papers by Guy's Men

A. M. Zamora. Two benign growths removed by bronchoscopy. *J. Laryng. and Otol.*, 1931, xlvi, 829.

F. D. Howitt and W. F. Christie. Malnutrition factor in rheumatoid arthritis. *Lancet*, 1931, ii, 1282.

W. E. Herbert. Amalgams: cavity preparation. *Brit. Dent. J.*, 1931, lii, 682.

R. N. Johnson. Artificial stones used for dental models. *Brit. Dent. J.*, 1931, lii, 673.

L. R. Broster. Surgical emergencies. *Clin. J.*, 1931, lx, 594.

W. H. Caldwell. Survey of prognostic factors in treatment of general paralysis. *B.M.J.*, 1931, ii, 1129.

W. H. Barber. (1) Lichen spinulosus with cicatrical alopecia; (2) Lichen plano-pilaris; (3) Pityriasis lichenoides acuta without varicelliform lesions. *Proc. R.S.M.*, 1931, xxv, 211.

A. H. G. Burton and A. R. Balmain. Diphtheria immunity and tonsillectomy. *Lancet*, 1931, ii, 1401.

L. Forman. Widespread superficial lupus erythematosus; (2) Widespread streptococcal dermatitis. *Proc. R.S.M.*, 1931, xxv, 218.

E. W. Goodall and J. D. Rolleston. Two cases of striæ atrophicæ following typhoid fever. *Proc. R.S.M.*, 1931, xxv, 213.

E. Graham Little. (1) Poikilodermia vasculare of Jacobi; (2) Two cases of granuloma annulare. *Proc. R.S.M.*, 1931, xxv, 220.

W. Howarth and W. A. Mill. Neoplasm of larynx. *Proc. R.S.M.*, 1931, xxv, 232.

T. B. Layton. Specimen of right subglottic carcinoma in a larynx removed nearly five years after onset of hoarseness. *Proc. R.S.M.*, 1931, xxv, 231.

P. G. McEvedy. Injection treatment of hæmorrhoids. *Lancet*, 1932, i, 17.

Appointment

E. C. Warner, M.D., M.R.C.P., Honorary Assistant Physician, Charing Cross Hospital.

Notice

Miss M. Ellis Rowell (Guy's) has just had a new Lift installed in her Home at "Langley House," 47-49 Beaumont Street, W.1, and is to be congratulated on the alterations and additions made for the added comfort of the patients. All the 20 bedrooms now have hot and cold water supplied, and an additional telephone service has been installed.

Marriage

CARPENTER—GRIFFIN.—E. B. Carpenter to Mary I. Griffin, S.R.N., on October 21st, 1931, at Rayleigh, Essex.

Deaths

HIGGINS.—P. C. Higgins, M.R.C.S., L.R.C.P., on 20th November, 1931, at Brisbane, aged 59.

SAUNDERS—James Frederick Saunders, M.R.C.S., L.S.A., beloved husband of Esther May Saunders, of 84, Rose Hill Street, Derby, aged 72 years. At rest, December 13th, 1931.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

THERE is on foot at the present time a project aiming at the wider recognition of the health-giving properties of English coastal and inland resorts. We understand that certain members of the medical profession, acting, as it were, in the capacity of expert witnesses, are being invited to give their views on the relative merits of the various districts. The scheme is a very laudable one.

Too long has the British climate been alleged by the inhabitants of these isles to have but three uses: firstly, as a topic for conversation in those embarrassing silences that occur from time to time; secondly, as a never-failing cause for complaint, and, finally, as a scapegoat for many of the ills to which the flesh is heir.

There is no doubt that at the present time we are on the brink of a great wave of national enthusiasm. Patriotic feeling, born of the troubles with which this country is beset, is likely to run high for several years to come. The depreciation of the pound is not, therefore, the only, or even the main cause of the paucity of English visitors to be found on the Riviera this winter. Nor, with this sense of patriotism once aroused, is this state of affairs likely to be short-lived.

The study of the weather reports from areas in South and South-West England amply testify to the equable climate claimed for them, as also do the reports on the various botanical specimens now in full bloom in these districts.

The medical fraternity have long recognised that the therapeutic values of more southern countries have in many cases been over-estimated. We hope, for example, that this movement will explode, once and for all, the belief so fondly held by the lay public, that Switzerland is the only ideal situation for the arrest of pulmonary tuberculosis.

It is clearly now the duty of all British doctors to furnish themselves with a knowledge of the climatic virtues obtaining in the so-called English Riviera, so that, when possible, they may recommend some native town to those of their patients who may need a mild winter climate.

More particularly does it behove the municipal authorities of the towns concerned to cater for the influx of visitors that is bound to occur. The attractions of these places must, moreover, be made such that, with arrival of more prosperous times, there will be no reversion to the previous hibernal migration to Continental shores.

▭

IN a recent issue of the *Gazette* we remarked on the Commission which has lately been instituted to inquire into certain problems in connection with the Out-patient Departments of the voluntary hospitals. It is interesting to note that a predecessor of ours has been appointed to this Commission. We refer to Lt.-Col. F. E. Fremantle, who was editor of the *Gazette* in the years 1896-98. We feel certain that his training at Guy's, both as student and house-officer, will enable him to make some valuable and practical contributions to the Inquiry. Incidentally, in our comments on the General Election we omitted to mention that there are three Guy's men among the 16 medical Members of Parliament. These are Dr. Alfred Salter, Dr. Graham-Little and Lt.-Col. Fremantle. We are sure that our readers will be interested to learn that Guy's is so well represented amongst those responsible for the control of the destinies of our country.

▭

WE have to announce the death on January 3rd of Mr. Tom Bird, consulting anæsthetist to the Hospital. During his years at Guy's, Mr. Bird

was not only a skilful administrator of the anæsthetics of his day, but also a much-valued teacher. His death, at the age of 87, will be regretted by all who knew him at Guy's.

ON Friday, January 15th, the Light Department held their annual dance at the Bridge House. This function was, as usual, a great success, and much credit is due to Miss Looker (Sister Light), who undertook the difficult and trying duties of hostess. Miss MacManus, the Matron, also very kindly gave her support, and was accompanied by Miss Angove (Sister Massage). The presence of Mr. and Mrs. Eason and of many Guy's men proves that the Light Department is rapidly establishing itself as an independent and important department of the Hospital.

WE should like to offer our congratulations to Mr. J. T. Irving, who has recently taken the degree of M.D. (Cambridge).

THE following have been appointed Clinical Assistants for the period beginning January 16th, 1932 :—

E. H. Crowther-Smith.
R. T. Elvin.
W. H. Lewis.
W. H. Owles.
W. P. Stamm.
G. H. Taylor.

WE have been asked to announce that tickets for the Residents' Play will be issued during the first week in February.

WE would remind our readers that the annual subscription to *The Gazette and Directory of Guy's Men (Medical and Dental)*, 12*s*. 6*d*. post free, is now due, and should be forwarded to The Manager, The GAZETTE Office, Guy's Hospital, S.E.1.

The Treatment of Malignant Disease from the Standpoint of Radiation

By Dr. C. E. Iredell

AN International Congress of the history of Science has recently been held at which special attention has been drawn to the necessity of dealing with the historical side of scientific subjects, and an illustration of the truth of this contention may be found in the history of cancer research.

A letter from an old Guy's man, Sir Ernest Graham Little, M.P., has recently appeared in *The Times* on the subject of radiumtherapy. In it he makes many pertinent criticisms, some of which are so forceful that they are bound to influence the future development of radiotherapeutic research. Perhaps a few general remarks of mine may help to elucidate the subject, and I believe I cannot do better than follow the principles suggested by the International Congress and give a short historical survey of the course of radiotherapy since its inception.

The two most important agents in the treatment of malignant disease during the present century have been X-rays and radium. It is easy to understand that one of these agents might be preferred to the other, but the fact that each of them has enjoyed two periods of popularity is by no means so easy to comprehend, and makes the study of their history particularly interesting.

The discovery of X-rays at the end of the last century and the interest aroused by their penetrating power at once gave rise to the hope that they would prove of value in medical treatment in general and in malignant disease in particular, especially as it was soon found that the malignant cell was more susceptible to the action of X-rays than the normal cell. Moreover, while X-rays had the property of burning the skin, it was possible in some instances to give a dose which would destroy a malignant swelling without irritating the surrounding tissues. The early X-ray apparatus was so imperfect that, although the rays did exercise definite beneficial effects on malignant tumours, it was impossible to obtain an unvarying supply of rays for any length of time. The radiologist had thus to face the alternatives of either under-treating his patient or of producing an X-ray burn. Generally speaking these radiation burns were slight and only lasted for two or three weeks, but the treatment had to be stopped until the burn had recovered, and the malignant disease, deprived of the rays continued to progress. The risk of X-ray burns prevented all attempts to deal with deep-seated tumours.

It should be pointed out here that the term "burn" is a misleading one. An overdose of

X-rays or radium on the skin has unfortunately been associated with this word. Heat will, of course, sere the human body in the same way that it will sear wood, cloth, paper, etc. The inflammation produced by X-rays and radium may possibly bear some resemblance to the burn produced by excessive heat, but it must be remembered that the latter has no relation to the former, and that the X-rays and radium have no effect at all when applied to wood and other inanimate bodies.

These views are substantiated in an article which appeared in the *Index Medicus* for 1910, which quoted the following extract from the *Lancet* of July 17th, 1909, when a writer, in commenting on a paper by a colleague, says : " The case for X-ray treatment of malignant disease is very fairly stated . . . . after describing some cases more or less in detail he concludes : (1) In superficial forms of malignant disease X-rays may temporarily arrest the course of the disease, relieve the pain, diminish the discharge and heal up ulcers ; (2) Probably X-rays prevent the occurrence of secondary deposits ; (3) Embryonic cells are more easily destroyed by X-rays than are normal cells. This we may say very accurately summarises our own experience in a very large number of cases in the Electrical Department of the London Hospital, and, as our experience now extends over six years, we are inclined to question the accuracy of observation of those who claim results markedly superior to those put forward."

Some time after the introduction of X-rays as a form of treatment the substance known as radium was discovered. It too was employed for the treatment of cancer, though, owing to the small area over which it could be applied, its use was almost confined to the disease known as rodent ulcer. The discovery of this element led to a new treatment of cancer in Paris in the year 1909, which depended on the scientific investigation which had been made in the physical properties of the substance. This showed that it gave off three kinds of radiation—alpha, beta and gamma rays—which corresponded to the anodal, cathodal and X-rays produced in an ordinary X-ray tube. Further experiments soon showed that the alpha and beta rays could be stopped almost entirely by a piece of lead 1 millimetre thick, when treatment by means of gamma rays alone was possible. As the gamma rays were only 3 per cent. of the total radiations, the application had to be relatively long, but the results produced were so definite that the entertainment of the highest hopes were justified.

To the radiologist the interest of the Parisian method of applying radium consisted of three factors : (1) The length of application ; (2) the cutting off of secondary radiations by means of gutta percha tissue, paper and lint, and (3) the screening with lead. These secondary radiations were distinct from radium rays and were formed when gamma rays passed through a sheet of metal. This new treatment for malignant disease was introduced into London by Sir Frederick Treves, who, on January 26th, 1909, delivered a lecture at the London Hospital on " Radium in Surgery." In the *Lancet* of January 30th, 1909, page 339, he is reported as having said : " It can be said that epithelioma of such a degree to which the term ' exclusive ' might be applied had been treated with success by radium. . . . Are these results permanent ? " Sir Frederick Treves asked, replying : " Well ! apparently they are." The selective action of radium on the tissues must be investigated and the question of the effect of introducing radium into the substance of a growth in tubes permeable to its rays would have to be settled by careful observation."

This lecture led to a great interest in radium, which resulted in the foundation of the Radium Institute under the ægis of King Edward VII. Unfortunately, it was soon found that radium, which frequently produced the remarkable results described by Sir Frederick Treves, was not uniformly successful. Certain cases showed that it was not easy to remove a tumour by means of radium as it was by the knife, but it was a most disappointing fact that recurrences after the former were at least as common as they were after the latter. It was also disconcerting to find that the second application of radium was rarely as successful as the first, while the third application often had very little, if any, effect.

The interest in radium gradually diminished, and this was due to three causes :—

1. The supply of radium was limited. The Radium Institute possessed large quantities, but the medical profession as a whole was not yet familiar with its properties, and, outside London, it was very little used.

2. The small quantities of radium which were available at London hospitals were in charge of radiologists, who had no hospital beds and who were bound, therefore, to confine its use to out-patients. This made the lengthy applications necessitated by the use of lead screens difficult and irksome, and, though there were a few cases in which radium was applied to in-patients, it was not possible to devote to its use beds which were urgently needed for the routine work of the hospital.

3. The improvement due to radium treatment was not maintained, partly because secondary

deposits occurred elsewhere and partly because radium, with each subsequent application, seemed to lose its effect on the primary growth itself.

The importance of X-rays in diagnostic work gradually led to a great improvement in X-ray apparatus until it became possible to use X-rays with such ease and certainty that X-ray treatment was revolutionised. The rays could be produced in such quantities which, compared with those emitted by radium, were, although they were not so penetrating, unlimited. For the purpose of treatment the rays were filtered by placing a sheet of lead between the patient and the X-ray tube—a practice which was a development of the method employed in radium treatment, although the theoretical considerations were not quite the same as far as the two radiations were concerned. Radiologists, for the first time, had ample supplies of rays, and it is easy to see that, with the risk of damage to the skin practically eliminated by the screening, large doses could be given.

Cases were again shown at various medical societies in which malignant tumours had disappeared after one application of this new deep X-ray therapy treatment, and it was hoped that further investigations would lead to the attainment of permanently successful results. It soon became evident, however, that one massive application did not always remove a tumour, while it frequently produced disturbances which were so severe as to cause vomiting. It was then found that several smaller applications at short intervals were more beneficial, but even these in time seemed to lose their effect.

Meanwhile the discovery of a rich radium-bearing ore in the Belgian Congo changed the whole aspect of radium therapy. Radium could be extracted in such large quantities that the Belgians were able to fix a price which was sufficiently low as to make the purchase of considerable amounts possible. This reduction in price would probably, in itself, not have been enough to cause a widespread revival in its use if a new method of treatment, by which radium was put into a large number of small needles which were inserted into and around a malignant tumour at a surgical operation, had not been introduced. Hitherto the use of radium had been confined to experts, but the introduction of the new method could only be carried out by surgeons at an operation, and the control of radium therefore passed into their hands.

This method took no account of secondary radiations. These rays had been judged of considerable importance when the treatment was first introduced from Paris, as they gave rise to a severe inflammation of the skin. When the needles were buried in the unhealthy tissues the secondary radiation produced was of comparatively little importance, and the results of radium application were often satisfactory, but frequently radium needles were buried in healthy tissues with the idea of preventing the spread of the disease and this resulted in a very undesirable inflammation of the skin caused in part, at all events, by the secondary radiations.

This sketch in the history of radiation treatment in malignant disease falls naturally into four distinct periods, two of X-rays and two of radium, which can be roughly divided as follows :—

1. The first X-ray period from the discovery of X-rays until 1909.

2. The first radium period from 1909 to the end of the Great War.

3. The second X-ray period from the end of the Great War till about 1925.

4. The second radium period from 1925 to the present day.

During the first period cases occurred in which malignant ulcers were healed up, pain was relieved and tumours were reduced in size. The difficulties in producing X-rays and in avoiding " burns " prevented the extensive use of this treatment.

In the second period some of the burning rays of radium were cut off by means of lead, and it was possible to give long applications. These produced similar effects to those obtained with X-rays, but were far more efficacious. The quantity of radium used was not sufficient to cause burns on the one hand, or to induce harmful constitutional disturbances on the other, and the failure to cure was due to the fact that the tumours did not respond sufficiently to radium.

The third period was characterised by improved X-ray apparatus and " burns " were prevented by metal filters. The same effects on ulcers were observed, but, in addition, constitutional disturbances, which were generally supposed to be harmless, were produced and may have increased the tendency to malignant recurrences later on.

During the fourth period, in which an almost unlimited quantity of radium was provided at Government expense, the radium, contrary to the usual practice which obtained in the previous periods, was left in the hands of non-experts, namely, surgeons. The importance of secondary radiation was not considered, and very much larger doses were used which caused not only constitutional but also local disturbances. The

constitutional symptoms were at first diarrhœa, sickness, malaise and pain in the back, which lasted, in some cases, as long as six months. In this period the radium bomb, consisting of 4 grammes of radium, was used. This bomb, to quote the words of the Report of the National Radium Trust, "under present conditions of knowledge cannot be recommended for treatment of cancer." There would probably have been no necessity to have included these words in the Report if a "recognised radiologist" had assisted those in charge of the bomb.

A survey of these four periods emphasises certain facts. One is that, in each period, the earlier effects of the treatment were good, while subsequent applications were less satisfactory. In other words, the malignant tumour seems to get used to both X-rays and radium, and the effect of these agents is a gradually diminishing one. Improved methods by which larger doses of X-rays and radium can be given have not, up to now, solved this difficulty, and this is the problem which confronts those who are dealing with X and gamma radiation treatment of cancer at the present time.

Clinically there can be no doubt whatever that the second period, when the new method of applying radium was substituted for X-rays, was the period in which the greatest advance in radiotherapy was made. The improvements between the second and third and third and fourth periods were slight. Another point worthy of notice is that during the first three periods radium and X-rays were controlled by experts, whereas, in the fourth period, the radium was not. This even applied to the radium bomb, and as the radium ray is well known to be more penetrating than the X-ray, those experts who claim that radium is a better therapeutic agent than X-rays suggest this fact as a possible cause of the failure of the radium bomb. They also believe that harmful constitutional effects are produced less easily from radium than from X-rays.

I now come to the use of radiation in definite cases. Some time ago I saw a man suffering from a growth in the mediastinum who could only speak in a whisper. After an application of radium for a few days his voice returned and, for two years afterwards, his speeches were regularly reported in the press. In another case a patient was sent to me with a growth of the rectum. This again was treated with an application of radium for a few days, and the patient died, 11 years afterwards, over 70, of cerebral hæmorrhage. Those who criticise radiation treatment could scarcely fail to admit that, in cases such as these, radiation is of the greatest value.

Unfortunately, all cases do not respond equally, and to imagine that better results can be obtained by the use of larger quantities of radium is erroneous. In this connection I will mention two more cases. Many years ago a man suffering from growth of the rectum spent a vast sum on radium. This was applied to the growth. A severe reaction followed, and the patient was dead in six weeks. Again, a patient suffering from growth of the uterus, had 50 mmg. applied to the growth. The radium, which normally was applied for 24 hours (in my opinion too long) was applied for seven days. The result was that the patient had a violent pelvic inflammation, ran a temperature of 106, and for a week her life was in danger. The growth disappeared, but six months later secondary deposits appeared in the ileum, which were eventually fatal.

The type of case best suited to radium treatment is growth of the rectum, uterus, lip and glands in the neck. Growth of the jaw and tongue have done better since radium needles were used. One great drawback to the use of radium treatment is its uncertainty—a problem which has hitherto proved insoluble, and it is still true that in a given favourable case a surgeon, by ordinary surgical methods, can be more certain of obtaining satisfactory results than an expert can with radium.

The class of case, however, which is suitable for the two methods of treatment is not the same. A small growth is invariably more suited to radium treatment than a large one. The situation of the growth makes a considerable difference, and I have often seen a secondary deposit in the sternum and malignant glands in the posterior triangle clear up with radium. On the other hand, I have never seen a carcinoma mammæ clear up with radium or X-rays, although satisfactory results have been obtained by a subsequent operation.

While no one who has any clinical experience of malignant disease would question the fact that both radiation and surgery are essential to its treatment, it is none the less true that the mortality, even with these treatments, is not diminished. Statistics seem to show an increase, though this is stated to be more apparant than real. The effect of treatment, judged by isolated cases, seems to be to postpone for months, or even years, the inevitable result, and this only shows the importance of a careful study of the suggestions and criticisms put forward by Sir Ernest Graham Little, particularly with regard to the employment of trained experts.

Cysts of the Jaws and their Treatment

A Clinical Lecture delivered at Guy's Hospital, January, 1932, by E. B. Dowsett, Esq., D.S.O., M.R.C.S., L.R.C.P., L.D.S.

GENTLEMEN,—I want to bring before you this morning some notes of some cysts of the jaws that I have dealt with recently and to offer some comments on the same. First, with regard to the so-called dental cysts. As you know, a dental cyst is generally supposed to arise from some of the epithelial remnants of the base of the enamel organ of the developing tooth, these remnants being found in the periodontal membrane near the apex of the tooth. When this membrane becomes irritated or inflamed, generally by toxins from a dead pulp passing through the apical foramen, these epithelial remnants proliferate and form what is known sometimes as an epithelial root tumour, or apical granuloma containing epithelium. As this epithelium continues to proliferate, the central cells break down and form fluid, whilst the peripheral ones continue to grow and so form the epithelial lining to the cyst that is thus gradually formed, the bone at the same time being burrowed out by a process of rarefaction. It has also been shown recently by Warwick James and Counsell that the epithelium of these cysts may have arisen in some cases from the gum epithelium which has grown in along a gum sinus connected with a chronic abscess at the apex of a tooth and which has later healed.

I do not propose to-day to discuss the symptoms and diagnosis of these cysts, but to lay stress on their treatment. I have operated upon a large number, and, as far as I can discover, there is so little concensus of opinion as to the best technique to adopt that I would like, therefore, to give you in detail my own general procedure and experience.

There are two distinct and recognised methods of dealing with these cysts, which I will call the "closed" and the "open." By the "closed" method, after a suitable gum-flap has been made, the outer wall of the cyst opened and the whole of the contents and the lining membranes dissected out, then the cavity is again closed by sewing up the gum-flap. This is a method I only adopt nowadays when the cyst is no larger than the top of my little finger (*i.e.*, about 12 millimetres in diameter). It is distinctly rare to find a cyst of this size to operate upon as they seldom give rise to any symptoms at this stage and so are frequently overlooked. There are some operators I know who on occasions adopt this method for the larger type of cysts, examples of which I shall show you on the screen shortly, but my experience of such procedure with these is that, in spite of all possible precautions, the blood-clot necessarily left inside —because the cyst cannot collapse—frequently breaks down, with the result that there is a large suppurating cavity which either bursts through the stitched flap or has to be opened. This necessitates tedious syringing through but a small opening, probably for months, before this suppuration ceases. Therefore, my own procedure with all these larger cysts is to adopt the "open" method. To assist my description I show some rough diagrams. I have omitted teeth from these diagrams in order to simplify their appearance.

By this method I make a large oval or rectangular flap so as to be quite free of the lateral limits of the cyst cavity, and having the alveolar edge of the flap well to the outer side of the alveolar ridge so as to leave the ridge itself intact, and thereby not to interfere with the early insertion of a denture. This flap is then carried right down as far as possible into the sulcus by raising with a periosteal elevator if there is bone over the outer side of the cyst—or by careful dissection with a knife to free the gum-flap if the outer plate of bone has been absorbed in any spot—in order to leave the lining membrane of the cyst intact, if possible, and not bring part of it away on the gum-flap. The dissection is then carried on beyond the depth of the sulcus, so as to free all the soft tissues from the limits of the whole of the outer side of the cyst. This often necessitates freeing the soft tissues right down to the lower border of the mandible or very high up in the maxilla. The cyst is then opened with a knife, burr or chisel, according to the consistency of the cyst-wall, at that part nearest the alveolar border, and as much of the cyst-wall —bone and lining membrane—removed as is already laid bare. This is most easily done with short-bladed crown scissors if the bone is thin or absent, but may necessitate a burr or chisel if the bone is thick. The contents can then be evacuated. The farthest part of the outer wall, which is beyond the level of the sulcus, is generally best removed "piecemeal" by means of bone-nippers —the whole object being to make the opening into the cyst as large as the greatest diameter of the cyst itself.

Now there is another matter to be considered at this stage and about which opinions vary, and that is, as to whether the remainder of the lining membrane should be removed. For reasons which

I will explain later and which I think are very beneficial, I always leave the lining membrane intact on the inner wall of the cyst, unless I find that it is badly diseased with very long-standing suppuration. As the furthest limit of the outer wall has often to be removed with bone nippers, it is very easy inadvertently to tear away some of the lining membrane of the inner wall, where one wishes to leave it intact, and so to avoid this where possible and expedient I make a definite incision with a knife right through the lining membrane along the lowest margin of the cyst cavity in the mandible and the highest margin in the maxilla. This quite prevents any tearing up of the lining membrane and makes it easy to remove that portion on the outer side of the incision. The gum-flap, which all this time has been held away either by means of a long ligature passed through it or by a retractor, is now turned right inwards, so that the raw surface of the flap lies against the raw surface dissected away from the cyst wall beyond the limit of the sulcus. My object, theoretically, is to make the edge of the flap exactly meet the cut edge of the lining membrane, and this may necessitate slight trimming, but more generally there is a slight deficiency rather than an overlap. In this way the whole bony cavity which is now saucer-shaped is open to the mouth, and either completely lined or very nearly lined with epithelium. Any slight deficiency in this respect very soon in a few days becomes epithelialised over, and so prevents any further exudation. If, on the other hand, there should be a slight overlap of the flap by its being too large, it is of no consequence, as it very soon contracts off the epithelial lining and only gives rise to a slight pucker. After tucking in the gum flap I always pack the cavity with sterile gauze lightly for 24 hours in order to keep the flap in position, after which no further packing is required. This packing is generally removed with very little discomfort by first soaking with weak hydrogen peroxide. It is very seldom that any excessive hæmorrhage occurs in operating upon these cysts, and what there is, is easily controlled with a little pressure or with hot saline.

It is often said that when the whole of the lining membrane is removed and the cavity left bare into the mouth, such cavity granulates up from the bottom and thus becomes obliterated. My decided opinion is that nothing of the sort ever happens. Now how does this obliteration take place? My own observations show that it seems to be definitely due to the growth of bone from the whole of the remaining surface of the cyst cavity, *under the epithelium*. By the operative procedure I have described, any small raw surface or denuded bone at the alveolar edge or at the base of the cyst very rapidly gets epithelialised over, and it is then that the bone soon begins to be deposited. This bone can easily be demonstrated, both by actual measuring and also radiographically. It is in consequence of this that I strongly advocate leaving the epithelial lining upon the inner wall and also the tucking in of the gum-flap, so that in the minimum of time the whole cavity left opened up is covered with epithelium. If the lining membrane on the inner wall is removed, then the whole surface has first of all to become covered with epithelium by growing in from the edges before any growth of bone and obliteration of the cavity can take place. Therefore, theoretically there should be a considerable delay in the filling-up process when this latter method is adopted. Practically in my experience this is exactly what happens; and the bone does begin to grow out more quickly if the epithelial lining is left intact on the inner wall of the cyst and considerable time is saved in the general obliteration process.

Amongst the various workers and writers on the subject of regeneration of bone, such as Keith, Adami, Macewen, Ham, Greig, Phemister, Leriche, Policard and many others, there is no definite opinion as to how such bone is reformed. Of the various cells in association with the bone it is generally conceded that the adult bone-cell takes no part in regeneration. Therefore the remaining bone-cells to consider are the osteogenic cells or osteoblasts found in the Haversian canals and in the periosteum. Those found in the endosteum do not concern us here in the jaws. It is just possible that the osteogenic cells in the Haversian canals might take some part in reforming bone on the inner side of the cyst, but it is more likely that there are no Haversian systems in that situation. The osteogenic cells in the periosteum can only be at the edge of the remaining cyst cavity, and therefore would have to grow centripetally under the remaining lining membrane before they could form bone, and this would take a long time. Therefore it seems likely that the regeneration of bone at the base of the cyst takes place by the process of so-called "metaplasia." Adami defined metaplasia as follows: "Metaplasia is the post-natal production of specialised tissue from cells which normally produce tissues of other orders and is an adaptation on the part of the cells to altered environment." There are two kinds of cells that will be found under the remaining lining membrane that, according to this theory, might take on the function of bone formation, namely, the fibroblasts and the osteoclasts—the latter having made their appearance in order to absorb the bone

away during the cyst formation—and by a metamorphosis or by a change in function, due to the altered environment, either of these may deposit bone. As a sidelight upon this we continually see rarefaction and deposition alternating in pathological conditions of both bone and cementum, either for no apparent reason, or because the character of the pathological condition changes locally —in other words, there is an altered environment.

Another great advantage in leaving the lining membrane on the inner wall and tucking in the gum-flap is that there is only a very short period, at most a few days, when there is any discharge from the cavity, because the very small granulating surface left at the alveolar edge, or at the junction of the tucked-in flap, with the remaining lining membrane is so very rapidly epithelialised over that there is no surface left to exude. The practical matter of syringing is thus reduced to a minimum and the cavity is very easily kept clean by the patient himself. Also, because of the absence of discharge, and because the alveolar ridge has been left intact, dentures as necessary can be inserted after a week or two at most. On the other hand, if the whole lining membrane is removed and no flap tucked in, there is a serous or purulent discharge from the raw surface for a long period, often extending over many weeks, or even months, which needs constant attention.

Still another advantage in removing the *whole* of the outer wall of the cyst and tucking in the gum-flap is that it almost entirely prevents the contraction of the opening made into the cyst. If the outer wall of the cyst is removed only as far as the level of the sulcus and, therefore, no position made for the gum-flap to be tucked in, there is a great tendency for the orifice to contract much in advance of the obliteration of the cyst cavity, and so there is a corresponding tendency to hold up food and also a great difficulty in cleansing.

With regard to the healing process in these cysts in the maxilla, it is often said that there is no regeneration of bone in that situation after it has been removed. From my observations it is most definitely reformed, though at a slower rate than in the mandible.

Many of the larger dental cysts in the premolar and molar regions in the maxilla invade the region of the antrum so that the actual membranous cavity of the antrum is often much reduced in size and in some cases completely obliterated by the outer wall of the antrum being pushed right up to and in contact with its inner wall. I have operated on many cases of this latter nature. In one particular case, during the operation, when the whole of the outer wall of the cyst had been removed and I was trimming up the edges, a very striking phenomenon occurred. The lining membrane on the inner wall of the cyst had been left intact as usual, when, in consequence apparently of an increase of pressure in the nasal cavity from the anæsthetic, and because all the bone on the outer side of the antrum had been absorbed, the antrum suddenly blew out like a small air balloon and completely filled the cyst cavity, and then by the varying nasal pressure this was sucked in and blown out again several times. The after-history of this case was most interesting and instructive, and perhaps remarkable. I packed the cyst cavity very lightly for 24 hours, just sufficiently to keep my usual gum-flap in position, and healing was rapid and uneventful. But the interesting point is that bone actually grew again between the lining on the inner cyst wall and the lining membrane of the antrum and in a few months the condition was apparently quite normal.

This condition of affairs, therefore, where the lining membrane of the cyst may be in actual contact with the lining membrane of the antrum, but back to back so to speak, with no bone intervening, is another very good reason for leaving the epithelial lining on the inner wall of the cyst, and its removal would almost certainly open the antrum and complicate the condition considerably and quite unnecessarily.

I will now show you some skiagrams of a few representative cases of these cysts, and some showing regeneration of bone after operation (slides 1 to 30).

An interesting point I have noticed in many of these cysts is that when large they are often not quite globular in outline, as one would expect, but appear to be partly loculated. Now this may be due to a peculiar burrowing propensity on the part of the growing epithelium (slides 2, 3), but it also seems that in some cases (slides 4 and 6) it may be due to the original cyst, during its growth, encroaching upon the root of another tooth and thereby starting the epithelial remnants in the periodontal membrane of that tooth to grow and form another cyst which afterwards coalesces with the original cyst. This apparently may occur even when the pulp of that tooth is alive, as in the cases shown. This point is confirmed also by two cases I brought before this Section several years ago of dental cysts around the roots of living teeth, which seemed to have arisen around those teeth and were not merely encroaching cysts. This is not at all in conformity with the work and deductions of Warwick James and Counsell, who have shown that the epithelium in granulomata and cysts arises from the gum epithelium which has grown in via a sinus from a " dead " tooth; but at the same time these observations do seem

to point to the possibility of the epithelial remnants in the periodontal membrane taking on active growth, though I can show no histological evidence to that effect.

I will now describe to you a few unusual forms of dentigerous cysts that I have had to deal with.

The first one (slide 31) is that of a dentigerous cyst of a maxillary supernumerary incisor. In teaching the diagnosis of a dentigerous cyst one had always mentioned that a tooth would generally be missing from the arch, but not necessarily, as it might be growing from a supernumerary, but until I came across this one in 1926 I had never observed one nor seen one described. Since that date, however, I have seen three further cases described. This one, as its appearance indicates, was simple to deal with and healed rapidly.

The second case (slide 32) is a dentigerous cyst of a right mandibular third molar. Incidentally, such cysts in this situation are fairly common, and I have operated upon six in the last five years. The interesting point about this particular case is the fact that the whole of the crown was not free into the cyst as has always been the case with dentigerous cysts in my experience. As is seen from the skiagram, only about one-quarter of the crown is exposed to the cyst cavity, the remainder of the crown being deep in and surrounded by bone and gum tissue. Also the tooth is partially inverted and the under surface of the root is denuded of bone, but in contact with the lining membrane of the cyst. It might be argued that this was a dental cyst caused by infection from the surface behind the second molar, but it was so deep as to preclude this suggestion, in my opinion. This case I operated upon by the usual method after removing the tooth. It healed readily, and the regeneration of bone was rapid (slide 33).

The third case (slides 34, 35, 36) is what one might call a compound dentigerous cyst, if I may suggest a new term in the nomenclature of such cysts. It had the crowns of three teeth, all presenting into and uncovered in the same cyst, the roots being fixed in varying degree in the bony wall. As far as my experience goes this is quite unique. There was also one other unerupted tooth buried in the bone immediately adjacent to the cyst. The cyst was in the middle line of the mandible, and the three teeth presenting into the cyst were the right second incisor, a right supernumerary incisor and a left supernumerary incisor, the buried tooth being the left second incisor. The lowest tooth of all, namely, the right second incisor, had its apex presenting through the lower border of the mandible and not covered by any bone. This is well shown in the skiagram, and could be easily felt with the finger. It might be argued that this case started as a dentigerous cyst upon one tooth, possibly the lowest one, and that the other teeth presenting into it were merely unerupted teeth laid bare by absorption of bone during the enlargement of the cyst, but from the extreme similarity in which all three crowns were presenting into the cyst, one is rather forced to the conclusion that it was a case of simultaneous development of dentigerous cysts upon all three teeth, and that these three original cysts eventually joined up into one. There are no special points to recount in the operation. In order to assist, I removed the two first incisors, and the healing and obliteration were normal. These teeth were low down and the cyst so large that I thought it inadvisable after opening the cyst to leave either of the teeth involved in position, as advised by Sprawson in some cases. As the patient was of middle age, it seemed unlikely that the teeth would ever rise into position.

With regard to the histological examination of the lining membranes of these cysts, both dental and dentigerous, all those cases that I have examined have had the quite normal appearance of two or three layers of small epithelial cells with occasional bare patches.

I may add finally that everyone of these cysts I have operated upon has become completely obliterated, and in a space of time varying from three months to two years each one has resulted in either a mere depression on the outer wall of the jaw in the sulcus or has become so completely obliterated as not to be recognisable at all other than by a slight puckering of the mucous membrane.

SLIDES

1. Small dental cyst of mandible. Suitable for operation by " closed " method.
2. Large dental cyst of mandible—somewhat loculated.
3. Dental cyst of mandible—loculated.
4. Large dental cyst of mandible, originating from first molar which has been lost, but with special extensions under the second premolar and the second molar, both of which teeth had living pulps.
5. Showing regeneration of bone after six months in case shown in slide 4.
6. Large dental cyst of mandible originating from second molar root, with special extension under second premolar, which had a living pulp.
7. Showing regeneration of bone after eight months in case shown in slide 6.
8. Dental cyst of mandible.

9. Showing regeneration of bone after seven *weeks* in case shown in slide 8.

10. Dental cyst of mandible.

11. Multiple dental cysts of mandible.

12. Multiple dental cysts of mandible.

13. Dental cyst of maxilla in incisor to canine region.

14. Showing regeneration of bone after three months in case shown in slide 13.

15. Dental cyst of maxilla in incisor to canine region.

16. Showing regeneration of bone after ten months in case shown in slide 15.

17. Dental cyst of maxilla from right incisor to left canine.

18. Showing regeneration of bone after ten months in case shown in slide 17.

19. Dental cyst of maxilla from right incisor to left canine.

20. Dental cyst of maxilla in premolar region just encroaching upon the antrum.

21 and 22. Large dental cyst of maxilla from left central incisor to first molar, almost obliterating the antrum and burrowing across the palate.

23. Showing regeneration of bone after 15 months in case shown in slides 21 and 22.

24. Dental cyst of maxilla in premolar region, almost obliterating the antrum.

25. Showing regeneration of bone and reformation of the antrum in case shown in slide 24.

26. Large dental cyst of maxilla from incisor to premolar.

27. Showing regeneration of bone after four months in case shown in slide 26.

28. Dental cyst of maxilla in first molar region, completely obliterating the antrum.

29. Dental cyst of maxilla in first molar region, completely obliterating the antrum.

30. Dental cyst of maxilla in second molar region encroaching upon the antrum.

31. Dentigerous cyst on supernumerary maxillary incisor.

32. Dentigerous cyst on right mandibular third molar.

33. Showing regeneration of bone after four months in case shown in slide 32.

34, 35, 36. " Compound " dentigerous cyst of mandible in incisor region.

Medical Centenaries of 1932

By H. T. Butcher, Esq.

IN 1932 will be celebrated the centenary of the institution of the British Medical Association. Of a number of anniversaries of interest to the medical world that occur in 1932 this is undoubtedly that of the greatest importance.

Yet other events of interest to medical men occurred exactly a hundred years ago. It is a tribute to the advance of medical science during the past century that in 1832, on February 6th, cholera broke out at Edinburgh, and had spread to London by February 14th. On the 20th was passed the Cholera Prevention Act. Far worse was the cholera scourge in France, where 18,000 people perished in Paris alone in a few months, and rioting necessitated that city being declared in a state of siege on July 3rd.

Several celebrities of more than passing interest to the medical profession were born in 1832. The historian, son of that Richard Bright whose name is perpetuated in " Bright's Disease," was born that year, as was Edouard Claparede, a Swiss naturalist who became professor of comparative anatomy at Geneva. Sir George Birdwood was born at Bombay and graduated M.D. at Edinburgh, subsequently being for many years at the India Office. He was an authority on Eastern subjects.

The great Sir William Crookes, O.M., was born on June 17th. President successively of the British Association, the Chemical Society and the Royal Society, he was author of " Select Methods of Chemical Analysis." An analytical chemist of the highest class and an eminent authority on sanitation, his services to the public on matters concerning heat and water supply, beet sugar manufacture and sewage were incalculable. He became editor-proprietor of the *Chemical News* and editor of the *Quarterly Journal of Science*. He investigated the properties of radium and invented the spinthariscope and an eye-preserving glass for spectacles. That he survived until 1919 is testimony to the association of industry and longevity.

Dorothy Wyndlow Pattison, better known as " Sister Dora," was born at Hauxwell on January 16th, 1832. In 1865 she took charge of a hospital conducted by the Sisterhood of the Good Samaritan at Walsall, and during a small-pox epidemic 12 years later became Superintendent of the Walsall Municipal Hospital. Indefatigable in labouring for others, Dorothy Pattison is worthy of comparison with Florence Nightingale as a pioneer of British nursing.

Sir William Turner, F.R.S., also born in 1832, became Professor of Anatomy at Edinburgh in 1867, President of the General Medical Council in 1898, and in 1903 Principal of Edinburgh University. Sir Edward Burnett Tylor was born

"EROS" IN THE ANNEXE

October 2nd, 1832, at Camberwell, and, after extensive travelling in Cuba and Mexico, became the leading anthropologist of his age, surviving until 1917—a year later than Sir William Turner.

On August 16th, 1832, Wilhelm Wundt was born at Baden. He studied medicine at Tubingen, Heidelberg and Berlin, and became a professor at Heidelberg, and subsequently at Zurich and Leipzig. It was at Leipzig that he founded, in 1879, the first laboratory for experimental psychology. He wrote on the nerves and senses and the relations of physiology and psychology, his publications including "Human and Animal Psychology," "Outlines of Psychology" and "Folk Psychology." Wundt defined psychology as "the science of immediate experience," and employed physiology as the basis of psychology.

Jeremy Bentham died on June 6th, 1832. A great economist and reformer, it was typical of Bentham that he should desire his body to be dissected. His skeleton, dressed in his accustomed garb, is preserved in the museum of University College. Johann Caspar Spurzheim died at Boston, U.S., 10th November, 1832, having sailed from England only a little while previously. Spurzheim was a founder of phrenology, and spent his life in winning converts. George Crabbe, who died at Trowbridge on 3rd February, was better known as one of our most human poets, but in his earlier career was apprenticed to a surgeon at Woodbridge, in Suffolk, and for three years struggled in practice at Aldeburgh. It was in 1832, on May 12, that the Baron de Cuvier died. In 1795 Cuvier was appointed assistant professor of comparative anatomy in the Jardin des Plantes, and in 1803 became permanent secretary of the Academy of Sciences. Cuvier was the author of several works on comparative anatomy, of which science he was undoubtedly the greatest exponent. He was, however, a formidable opponent of the evolutionary theories of Lamarck, and a keen supported of Linnæus's dogma of constancy of species.

Andrew Duncan, a well-known Edinburgh medical professor, died in 1832, as did Sir Everard Home, who was surgeon to the King and to Chelsea Hospital, President of the R.C.S. and Vice-President of the Royal Society. Sir James Mackintosh, the celebrated lawyer, who died that year, had studied at King's College, Aberdeen, and obtained a medical diploma at Edinburgh, but abandoned medicine for the law. Antonio Scarpa, who became professor of anatomy at Medina and Pavia, and director of the medical faculty at Pavia, died October 31st, 1832. Scarpa's fame as a clinical surgeon was international He made special studies of the ear, heart, eye and nose, and demonstrated that the heart is supplied with nerves and that arterio-sclerosis is a lesion of the inner coats of the arteries. Edward Walsh, an Irish surgeon who died in 1832, graduated at Edinburgh, served in the West Indies as physician, and finally became physician to the forces on the Continent until the battle of Waterloo.

Another Walsh—John Henry—better known as editor of the *Field*, became a member of the R.C.S. in 1832. Mention has been made of Cuvier's opposition to Lamarck, and it was in that year that Cuvier's "Eloge" of him was published. Lamarck had, to a great extent, anticipated the theories of Darwin, and it is interesting to recall that in 1832 Darwin was just beginning the cruise in H.M.S. *Beagle* that provided the data for the "Origin of Species."

In a feminine age it is almost amusing to recall the struggles of Elizabeth Blackwell to obtain recognition. It was in 1832 that her parents emigrated to America, when she was only a girl of 11. The death of her father six years later made it incumbent on Elizabeth to help support the family by teaching, and she devoted her leisure to the study of medical books. After being refused entry to several medical schools, she was admitted to the medical college at Geneva, New York, and graduated in 1849. She was placed on the British Medical Register in 1859, and survived until 1910.

Other events of medical interest occurred in 1832. Johann Dieffenbach, whose skill in transplanting new noses and lips made him famous, became Extraordinary Professor of Surgery at Berlin. Sir Astley Cooper published his "Anatomy of the Thymus Gland." Sir David Brewster, the celebrated physicist, who perfected the lenticular stereoscope, was also a first authority on optics and an originator of the British Association, and who became Principal of Edinburgh University, was knighted that year. Henri Milne-Edwards, who studied medicine at Paris, succeeded Cuvier in the Académie des Sciences and was a foremost zoologist, entomologist and physiologist, began that year his researches on the natural history of the French coasts.

It was in 1832 that Lorenz Oken, who had been a professor of medicine at Jena and had developed the exploded theory that the skull is a modified vertebra, became a professor at Zurich; that Sir James Young Simpson, practically the founder of anæsthetics, took his medical degree at Edinburgh University; and that James Syme, unrivalled as operator and lecturer alike, wrote his "Principles of Surgery." Sir John Forbes that year became joint editor of the "Cyclopædia of Practical Medicine." Sir John was a native of Banffshire, and studied at Aberdeen and Edinburgh. He was

founder of the *British and Foreign Medical Review*, promoted the use of the stethoscope, and greatly developed physical diagnosis.

One of the most interesting of the bicentenaries of 1732 is that of the birth of William Tuke, a York Quaker, who was a pioneer of the movement for more humane treatment of the insane. In 1632 was born John Vaillant, a French physician who became a searcher for antiquities, and was commissioned by Colbert to collect medals for Louis XIV. It was reported of Vaillant that, when captured by pirates, he swallowed valuable medals, without injury, to prevent their being confiscated. Anton van Leeuwenhoek was born at Delft, in Holland, that year. At first a clerk in an Amsterdam warehouse, his hobby of making lenses and studying microscopic structures and forms of life led to his becoming the most famous of microscopists, and he conducted a series of epoch-making discoveries in support of the circulation of the blood and in connection with blood-corpuscles, spermatozoa, infusoria and rotifers.

In the same year as Leeuwenhoek was born the great John Locke. Although best known as one of our greatest philosophers, and as author of the famous "Essay Concerning Human Understanding," he studied medicine at Christ Church, Oxford, and practised for a time, although he never took a degree. 1632 is interesting also as the year of the appearance of Rembrandt's great painting, "The Anatomical Lesson."

From the study of centenaries it is interesting to turn to that of a millennium. In 1932 it will be exactly one thousand years since the death of Rhazes, the celebrated Arabian physician who was in charge of a public hospital at Bagdad and was the first to give a distinct account of small-pox.

Correspondence

Old "Colectomy" Patients

To the Editor of the GAZETTE

SIR,—Sir Arbuthnot Lane has sent me a letter from an old "colectomy" patient, in which your readers may be interested, and says that he has had many similar letters and has met many of the "colectomy" cases done in 1914 and previously. "They all look well, happy and extraordinary young-looking." I give a few extracts from the patient's letter :—

"In a few days' time it will be the 19th anniversary of the operation for colectomy you performed on me, and I have often thought how much I should like you to know how well I still am, and for which I am so thankful; and at this time of year think about the time in Guy's with much gratitude to you. . . . In an ordinary way I quite forget about my past ill-health and lead an active life. I have a small flat and do my own work, and walk some little always twice daily."

Yours, etc.,

E. C. HUGHES.

17, Wimpole Street,
W.1.

Reviews

The Cause of Cancer. By W. E. GYE and W. J. PURDY. 515 pages. Published by Messrs. Cassell & Co., Ltd. *Price* 30*s.* net.

GYE'S preliminary observations upon the complex nature of the cell-free filtrate of the Rous I tumour in 1925 met with much free criticism based largely upon the incomplete evidence for a non-specific, living, self-propagating virus, and the lack of fully-controlled experimental evidence for either factor. His accessory factor was misappropriated as a Mendelian recessive and a Weismann determinant, and accumulating evidence of the multiplicity of precipitating factors tended to obscure the importance of the common virus factor.

This present volume, titled somewhat unfortunately, is a candid record of six years' work in substantiation of the original claims. Much of the work has been devoted to an experimental study of the complex nature of the infecting mechanism. The close similarity in the action of various antiseptics on bacterial cultures, the Baumetz virus cultures, and cell-free filtrates is again drawn, and further work on the loss of infectivity after incubation with good experimental proof of the oxidase tissue digestion nature of the latter is adduced in evidence of the double factor. The experimental endeavours to isolate this second non-living, labile, specific substance consist of a series of observations upon the action of various antiseptics such as chloroform, acriflavine and hydrocyanic acid upon the non-specific factor. The isolation was not satisfactorily accomplished, but deductory evidence of its presence is produced, and the whole piece of work constitutes an admir-

ably controlled and recorded series of experiments with candid and logical conclusions. Numerous graphic records accompany the text. It remains, however, that efforts to eliminate the non-specific factor in the endeavour to isolate the specific tissue accessory substance have proved vain.

The authors, however, utilising immunological principles, succeed without doubt in proving the existence of two separate antigenic factors. By the induction of active immunity in various animals stated it could be shown that the antisera reduced the potency of antigenic filtrates either directly or with the assistance of fresh serum containing complement. The logical conclusion is of the presence of two definite antigenic factors, one of which can be rendered inert by inactivated serum and is absorbed by normal fowl tissue, and the second to which the addition of complement is essential and which is not absorbed by normal fowl tissue. This is undoubtedly one of the main issues of the present group of experiments, although, of course, there is nothing ætiologically new expressed.

The last part of the work refers to the specificity of the accessory factor, and is again inconclusive. Rous sarcoma I antiserum, heated and without complement, inactivated both Rous I tumour filtrate and Begg's tumour filtrate, but failed to inactivate the histogenetically identical Fujinami myxosarcoma. Such findings are not destructive; they merely indicate the complex nature of the accessory factor and the lack at present of proven specificity.

Nothing new on the transmission of mammalian cancer by cell-free filtrate is included.

The volume is an admirable and readable record of a series of patient experiments with logical deductions, illustrated by profuse experimental detail and diagram. It is a book for both the academical and the experimental pathologist, and is as essential as the original communications of Rous and of Gye himself. We feel that, even without the feeling attack upon the philosophical pathologist added in the last chapter, this volume will invite much thoughtful criticism and well-directed, carefully-controlled experiment.

C. K. S.

Phylaxis. By J. BILLARD, M.D. Published by Messrs. Kegan, Paul, Trench, Trubner & Co., Ltd. *Price* 9*s*.

PHYLAXIS is the conception of a mechanism whereby animals may acquire immunity to certain groups of poisons, notably the newer toxins, by non-specific means. M. Billard points out that it has long been known by the shepherds of certain districts in France that during the spring, when the sheep feed on the sprouting broom, they became relatively immune to the bites of snakes. It is suggested that this occurs in virtue of the sparteine which is present in the broom, and this is confirmed by experimental guinea-pig work. Sub-lethal doses of sparteine injected into guinea pigs are found to protect them from a dose of venom, lethal for untreated guinea pigs, subsequently injected. This does not occur if sparteine and venom are injected at the same time or previously mixed in vitro.

The author assumes that the sparteine becomes fixed to the lipoid constituents of the nerve cells, which are thus saturated and rendered incapable of absorbing the neurotoxin of the venom.

He goes on to apply this theory to the protective action that one neurotoxin of bacterial origin may afford the organism against another neurotoxin subsequently injected. It is extended to explain the protective effects of certain mineral waters and the action of luminal in certain cases by altering the physical properties of the cell constituents.

In the field of immunology, where theories tend to outrun the facts, it is easy to criticise. To be hypercritical is as useless as to be uncontrolledly enthusiastic. This little book contains some interesting facts (and is worth reading for these alone), and some stimulating attempts to explain them rationally. Though the conception of phylaxis has probably to be modified as much as has that of anaphylaxis before the truth is laid bare, it appears to be built on a solid foundation.

Guy's Hospital Reports. July, 1931, Vol. lxxxi, No. 3.

IN the first article of the Reports Sir William Hale-White epitomises previous volumes printed from 1896 to 1908. In the first of these volumes is an account of the Maidstone typhoid fever epidemic, and one is reminded that no less than 600 cases of typhoid fever were treated in Guy's between the years 1879 and 1893. Other facts equally startling to one whose medical education has been only recently completed are impressed upon one. Thus an article published in Vol. LIII (1896-98) helps to establish the claim of the Klebs Loeffler bacillus to ætiological significance in diphtheria, and in the same volume are recorded the unfortunate results of pioneer operative treatment of three cases of unperforated gastric ulcer. In 1909 an historical survey of the intravenous injection of drugs is given, and the author sums up against the practice. On the other hand, it is almost equally surprising to find that many of the articles then written might be reprinted to-day with very little alteration; for

example, F. J. Steward's article on tuberculosis of the nasal mucous membrane in 1900, and J. H. Bryant's paper on functional pulmonary incompetence, etc., as a complication of mitral stenosis.

Dr. J. A. Ryle writes on "The Physician as Naturalist." It is a plea for a wider outlook, in pleasant contrast to the narrow modern tendency to focus ever more exclusively on a single aspect of disease. In these days, when even the rarest and most unimportant of ailments have a bibliography of amazing length, doubts are apt to darken the minds of the curious; it would seem that not only must one concentrate on medicine as opposed to other fields of interest, but if one is to acquire more than a superficial knowledge he must concentrate on a mere corner of disease to the exclusion of the rest. Dr. Ryle dispels these doubts; he makes us realise that a knowledge of and interest in natural phenomena outside the realm of medicine may even help us to solve the problems of pathology, and surely still more may the study of one disease help to throw light upon another. In addition, he points out that there is much work to be done in the purely clinical field, a fact that one tends to overlook in days when mention of the work "biochemistry" fills one with mediæval awe.

Dr. C. F. Cosin describes a case of hyperparathyroidism treated by parathyroidectomy, with full investigations carried out before and after operation. The accompanying X-ray photographs are of great interest. M. A. Rushton follows with a report on the teeth of the above case. He concludes that no noteworthy dental defect arises from this cause; calcification is apparently normal and caries slight. It must be noticed, however, that he reports examining the teeth in February, four months after the parathyroid tumour had been removed, at which time considerable recalcification of bone had already occurred.

Dr. J. R. B. Hern includes a very thorough discourse on "Ulcerative Colitis" based on a series of cases treated at Guy's Hospital. He observes that it was "born dead in the sense that it was only an autopsy disease" in 1875, when it was first described at Guy's Hospital; the sigmoidoscope was the magic wand that restored it to life some years later. The pathological findings are described and co-ordinated with the radiological appearance, and an attempt is made to correlate these findings with their functional significance. The extreme chronicity of the condition and the very scanty evidence of a local bacteriological cause are stressed. Treatment and the relative value of the different methods used are discussed. The suggestion that recurrent dysentery is really ulcerative colitis to which acute dysentery has predisposed the patient opens up an interesting line of thought.

Finally, Dr. Waterfield describes an obscure case of lead palsy, whose symptoms appeared 24 years after he was last known to have been exposed to lead.

Sport

Rugby

Guy's v. Cardiff

THE visit of Cardiff to Honor Oak Park on Saturday, January 9th, proved a great attraction and a very large crowd turned up to see Guy's badly beaten by 2 placed goals and 3 tries (22 points) to a penalty goal (3 points).

The Hospital were without Windsor Lewis, Robin and Cunard, and, to aggravate matters, they were unable to call upon either of their scrum-halves, Eustace and Howell, who were both on the sick list. On the other hand, our visitors had to take the field without Boon, their brilliant wing three-quarter, and Skym, one of their outstanding forwards, both standing down in view of the international match against England.

Guy's gave a most disappointing exhibition, and the forwards in particular showed up poorly in comparison with the Cardiff pack. They very seldom secured the ball in the set scrums, and they were quite unable to hold the raids of the visiting forwards in the loose.

Jenet, the scrum-half of the "B" fifteen, made his first appearance in first-class rugby and gave a plucky exhibition in spite of the fact that he was playing behind a beaten pack and had to contend with the close attentions of the visitors' wing-forwards.

The defence of the Hospital threes did not come up to the usual standard, and on two or three occasions Bowcott and Graham-Jones were allowed to slip through as the result of half-hearted tackling.

Judging by the form in this match, Guy's will have to improve considerably if they are to regain the Inter-Hospital Cup; it may be that they were suffering from lack of training, but, if such is the case, it should be remedied immediately if they hope to overcome the holders who possess a pack equal to any in the Metropolis.

Cardiff kicked off and in the first few minutes nearly dropped a goal, but were sent back and Fichardt intercepted a pass which looked hopeful, but a punt-ahead was easily cleared by Stone, the visitors' full-back.

Immediately afterwards B. R. Turnbull broke through and kicked over the goal line; a race for the ball followed, and after Clegg and Johnson had fumbled the ball, Graham-Jones touched down for a try, which was not converted.

Giesen started a good movement, but Alexander missed Fichardt's pass and Bowcott gathered, cross-kicked, and it was only a knock-on that prevented another score. For a few minutes Guy's were compelled to defend on their goal-line, and temporary relief was obtained when Cardiff were penalised for offside. However, Stone brought off a fine clearance and, after side-stepping two of the Guy's forwards, he found touch with a fine kick well inside the Hospital's 25.

Within a few moments the visitors went further ahead, as the result of another brilliant try by Graham-Jones, who eluded Fichardt and ran round behind the posts for Stone to add the goal points.

Cardiff were undoubtedly masters of the situation, and, following a great dribble by their forwards, L. Rees succeeded in crossing the line too far out for Stone to convert. This reverse appeared to have an inspiring effect on Guy's, and for the remainder of the half they were on top. A clever bout of passing started after Alexander had cut through the centre, and Johnson was hauled down in the visitors' 25.

Good touch-finding by Clegg kept Cardiff in their own half, and eventually Fichardt made a great effort to pierce a solid defence, but was collared within a few yards of the line.

A minute before the interval Guy's were awarded a penalty near the halfway line, and Hogbin kicked a great goal.

Guy's started the second half with plenty of dash, but it was not sustained; they were awarded two penalty kicks and from the second Morgan found touch near the corner flag. The Hospital were all but through, when a nice passing movement was intercepted, which Alexander did well to clear.

After this, Cardiff pressed strongly and, although Johnson brought off a good clearance from a cross-kick, Bowcott raced through the centre and scored a fine try between the posts for Stone to convert.

Another fine raid by the Cardiff forwards brought another try, through Clark, who scrambled over following several scrums on the goal line.

For a time Guy's improved, and with Stone misfielding the ball, there appeared every possibility of a score, but this clever full-back recovered and eventually led a forward dribble which ended in Graham-Jones scoring another unconverted try.

In the last minute or two of the game, Drummond gathered a cross-kick from Fichardt and was in the act of crossing when he was brought down. Alexander went near to scoring, and eventually Guy's were awarded a penalty in an easy position, which Hogbin missed.

Team.—W. B. Clegg; D. E. Ashdown, T. Fichardt, P. C. Alexander, A. G. Johnson; J. E. Giesen, E. C. Jenet; J. S. Batchelor, J. P. O'Shea, L. I. C. Campbell, R. J. Drummond, T. A. Hale-Monro, R. A. P. Hogbin, T. Morgan, A. R. Clarke.

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.
M.D. EXAMINATION.
December, 1931.
BRANCH I.
Medicine.

S. I. Abrahams — D. F. Kanaar
C. F. Cosin — H. W. A. Post
S. Shone

FIRST EXAMINATION FOR MEDICAL DEGREES.

G. D. Channell — K. Chartikavanij
D. H. Mackay

Papers by Guy's Men

W. M. Mollison. Palatal, pharyngeal and laryngeal paralysis, possibly due to polio-encephalitis. *Proc. R.S.M.*, 1931, xxv, 223.

—— Squamous-celled carcinoma of maxillary antrum and ethmoid—deep X-ray therapy—no recurrence five years later. *Proc. R.S.M.*, 1931, xxv, 226.

J. B. Parfitt. Amalgam. *Brit. Dent. J.*, 1932, liii (1), 1.

E. A. Peters. (1) Nodule on right vocal cord, case for diagnosis; (2) Prominence of cartileges of Santorini and Wrisberg accompanied by chronic laryngitis. *Proc. R.S.M.*, 1931, xxv, 232.

N. East. Alcohol and mental defect. *B.M.J.*, 1932, i, 113.

Change of Address

W. D. Doherty, F.R.C.S., 10, Upper Wimpole Street, W.1. *Welbeck* 2054.

Births

SHACKLE.—On January 5th, 1932, to Kathleen (née Burton), wife of J. W. Shackle, M.R.C.S., L.R.C.P., of Ardanoir, Purley Bury Close, Purley, Surrey—a son.

KENROY.—On January 10th, 1932, to Marjorie Barbara, wife of Ronald Victor Kenroy, L.D.S.Eng., at "Hillside," Havant Road, Drayton, Hants.—a son.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

IN face of the present financial difficulties of the world in general, and of this Hospital in particular, it is all the more remarkable that the amount of money recently expended on alterations in the Front Surgery could have resulted in so little improvement in accommodation for patients and staff. Although we do not wish to condemn the efforts of those responsible, we feel that, after a few months of trial, the changes made have not been justified; indeed, in some cases it has been just the reverse.

Broadly speaking, the result of the alterations has been that the Women's and Children's Sections have been moved to a position closer to the Men's Sections, new rooms being built behind the Front Surgery Hall. Unfortunately, however, the new rooms do not show any marked improvement on the old. Indeed, owing to architectural mistakes and errors in calculation, they are in many respects inferior. For instance, some of the light switches are in bad positions, and there is a noticeable difference between the floor levels of the new and the old sections of the Surgery. These, however, are only minor details when we come to consider the alterations in the Children's Section. Here the new Baby Room is totally inadequate, and is now only used as an auxiliary to the old Baby Room, which the Front Surgery has to borrow from the Out-patient Department. Meanwhile the three discarded rooms belonging to the old Women's Section remain vacant. In face of the obvious necessity for economy in all departments, these are surely grave mistakes.

In passing, we might refer to the fact that those responsible have not deemed it necessary to provide any accommodation for the Out-patients Officers. Perhaps it is the general opinion that these unfortunates stand on their feet all day. But surely it should be unnecessary for them to have to retire to the Porter's Lodge in order to obtain a few minutes' relaxation.

PRESENT House-Officers at Guy's and those to come will learn with regret of the retirement of Dr. Waldo from his position as Coroner for Southwark.

Dr. Waldo, who is now 80 years of age, has had a most distinguished career. He is both a Doctor of Medicine and a barrister. In his early days he studied in the laboratories of such masters as Pasteur, Koch and Pettenkopfer.

For eight and a half years Dr. Waldo was Medical Officer of Health for the borough of St. George the Martyr and of Southwark. In 1901 he was appointed City Coroner. It is interesting to note that Dr. Waldo was in the position of being entitled to hold inquests on fires. Moreover, he is Milroy Lecturer to the Royal College of Physicians.

Dr. Waldo insisted on post-mortem examinations in the great majority of cases on which he held inquests.

His consideration for bereaved persons in his Court will long be remembered, as also will his courtesy to the medical witnesses.

Dr. Waldo will be greatly missed. We should like, on behalf of Guy's men, to wish him many years of happiness in his well-earned retirement.

SOME weeks before Christmas we were approached by the nursing staff of the Out-patient Department, who, with the object of raising funds for the Yuletide festivities, were holding a raffle on a very large and beautiful doll. Complete with the best Christmas spirit, we gladly bought tickets and eagerly awaited the great day appointed for the draw. The day came, however, and passed; Christmas became a hazy memory, and still the raffle remained undecided. We have, however, just learnt that the draw has at last taken place, and that the doll has been won by a member of the Staff. We impart this information for the benefit of any of our readers who were thinking of demanding their money back.

WITH the approach of the Hospital Rugger Cup Matches we should like to take this opportunity of wishing Mr. Windsor Lewis and the 1st XV every success. Although the performance of the team this season has been characteristically inconsistent, the majority of the club matches have produced good games, and the standard of the side's play, although not brilliant, has at least been satisfactory. In recent years rather too much stress has, perhaps, been laid on the importance of Cup Matches, and club matches have suffered in consequence. At present the pendulum rather tends to swing in the other direction, but, nevertheless, given a full side and our best form, we hope that this year the fifteen will be successful in bringing the Cup back to Guy's.

DESPITE many gloomy forebodings, the Residents' Ball, held at the Grosvenor House on the 22nd January, was again an outstanding success. The number of persons present even exceeded that of last year's function, and the committee has every reason to be congratulated on, and to be proud of, the result of its efforts. We feel that the Ball is now definitely established as an annual affair.

WE have been asked by the President of the Residents to announce that, owing to the limited accommodation, it has been impossible to meet all demands for seats at the Residents' Play. He also regrets that he has been unable to reply personally to the large number of letters received.

THE first Alfred Fripp lecture on "Happiness and Success," which is to be delivered by the Right Hon. Stanley Baldwin on Friday, February 26th, at University College, should prove of great interest to all and sundry. Sir Alfred felt strongly that happiness was a cult, and within the grasp of everybody, and it was because he wished to put this view before students that he bequeathed a certain sum of money for the promotion of lectures on the subject.

Viscount Goschen, who, it will be remembered, was for many years treasurer of the Hospital, will take the chair. After the lecture a vote of thanks will be proposed by Sir Rennell Rodd. He was an old friend of "the Baron's," and his son, Mr. Francis Rodd, now a Governor of Guy's, owes his life to Sir Alfred's skill. A notice with reference to details of admission to this lecture will be found in the columns of the *Gazette*.

Chronic Gastric Ulcer

A Clinical Lecture by R. P. Rowlands, Esq., O.B.E., M.S.

GENTLEMEN,—Gastric ulcer is more serious than duodenal because it is more difficult to cure medically, and its operative treatment carries a higher mortality. Moreover, a gastric ulcer sometimes becomes malignant, whereas a duodenal one rarely, if ever, does this. Although *acute* gastric ulcer sometimes kills by bleeding, or occasionally by perforation, in the main it can be cured by prompt and thorough medical treatment. This is eminently desirable in order to prevent the development of a chronic ulcer, which is infinitely more serious and far more difficult to cure.

I am only concerned to-day with chronic gastric ulcer, and I am bringing before you three men, two treated by partial gastrectomy and one by gastro-jejunostomy.

I shall only deal very briefly with the causes, symptoms, diagnosis and medical treatment of gastric ulcer, but devote myself chiefly to the surgical aspects of the subject.

CAUSES

It is generally admitted that infection, sometimes direct, but mostly embolic, plays a very important part in the causation of peptic ulceration. The infection may be carried from any septic source in any part of the body; septic teeth, nose, throat, appendix and gall-bladder are most commonly to blame. Errors of habit and diet are also important, especially irregular meals, deficient mastication and excess of smoking and drinking. Excessive mental strain and physical fatigue also play important parts in lowering general health and increasing susceptibility. Hurst has shown that some men and certain kinds of stomachs (hyposthenic) are more liable to gastric ulcer. Others (the hypersthenic) are more liable to duodenal ulcer. Men, chiefly because of their more strenuous lives and irregular habits, are far more liable than women to all kinds of peptic ulceration.

DIAGNOSIS

Cancer and syphilis of the stomach, chronic gastritis, duodenal ulcer, cholecystitis, chronic appendicitis, chronic cholecystitis, pancreatic disease, carcinoma of the colon and various nervous gastric disorders are often mistaken for gastric ulcer. Correct conclusions depend chiefly upon :—

(*a*) The clinical symptoms, such as epigastric and radiating pain, coming soon after eating and

relieved by vomiting, with tenderness and rigidity in the left hypochondrium.

(*b*) X-ray examinations. An ulcer is strongly indicated by a persistent niche upon the lesser curvature or a meniscus on the posterior wall of the stomach, with a spasmodic notch or "incisura" upon the greater curvature opposite to the ulcer. There may also be delay in emptying the stomach or of a pouch in it, when pyloric stenosis or hour-glass contraction has developed.

(*c*) Chemical examinations. Unlike duodenal, gastric ulcer is rarely accompanied by hyperchlorhydria. A. F. Hurst in 53 cases of gastric ulcer found free HCl within normal limits in 58.7 per cent., above normal in 18.6 per cent., and below normal in only 7.6 per cent. In 114 cases of duodenal he found 61 per cent. had definite hyperchlorhydria. In 32 examples of carcinoma of the stomach there was achlorhydria in 62 per cent. and hypochlorhydria in 14 per cent., but it is important to remember that the free HCl may be normal, or even above normal, in about 25 per cent. of the early cases.

Occult blood is found in the stools in over 80 per cent. of gastric and duodenal ulcers; its persistence shows that the ulcer has not healed, but its absence does not prove that the ulcer has completely healed.

Although syphilis of the stomach is rare, it is important to take the Wassermann Reaction.

MEDICAL TREATMENT

Everybody now admits that chronic gastric and duodenal ulcers may heal spontaneously for their scars are commonly found at post-mortem examinations. This natural tendency can be much increased by thorough medical treatment, but to be adequate the treatment must be more careful and much more prolonged than is generally believed. It takes many months, and perhaps a year, of the most careful treatment to cure a large chronic gastric ulcer. The disappearance of pain, and even of a radiographic crater, often means no more than that the sub-acute inflammation and spasm surrounding the ulcer have subsided. It is very difficult to make patients believe that it is necessary for them to rest and persevere for a sufficiently long time. The private patient often finds the treatment irksome or even intolerable, and the hospital patient cannot afford to be out of work and earning nothing for a long time. There are not enough hospital beds for the adequate treatment of peptic ulcers and out-patient treatment is usually no more than palliative.

The chief dangers of medical treatment are mistaking an early primary carcinoma for gastric ulcer or failing to realise that a gastric ulcer has already become malignant. These errors are grave, because they often defer surgical treatment until it is too late. Unfortunately, these mistakes are, to my certain knowledge, fairly common at the present time, when the pendulum has, perhaps, swung too far in favour of persevering with medical treatment, even when the symptoms do not promptly abate. It is now commonly admitted that about one in ten of chronic gastric ulcers becomes malignant, and that about one in twenty carcinomata of the stomach begin in simple gastric ulcers. The danger of carcinoma supervening is greatest with ulcers of the pyloric segment of the stomach.

INDICATIONS FOR OPERATION

1. Very severe pain, often radiating to the back and left shoulder. This generally indicates deep penetration and adhesion of the ulcer, making a medical cure unlikely.

2. Failure of medical treatment, and especially recurrence of symptoms after one or more long courses of the best available treatment. Hospital patients naturally ask for operation earlier than private patients, who can afford to rest and wait.

3. Suspicion of cancer. This suspicion may arise from a short continuous history of severe symptoms, the pain being, perhaps, continuous from meal to meal and not relieved by vomiting or by alkalies. Complete loss of appetite with achlorhydria and rapid wasting are also very significant.

4. A chronic history. The more chronic the ulcer the less likely is it to heal medically, because its walls have become fibrous and its base adherent.

5. Large crater. The larger and deeper the crater the less the chance of a medical cure and the more reason for suspecting cancer.

6. Perforation, or persistence of symptoms after suture of a perforation.

7. Bleeding, especially severe, repeated or chronic. One or more transfusions are often necessary to make the patient fit for operation.

8. Obstruction, hour-glass, pyloric or prepyloric, causing spasm of the pylorus.

OPERATIONS

For perforation I practise simple closure with two layers of catgut sutures, with or without drainage, deferring any further radical operation until it proves to be necessary. In my experience this only happens in about 25 per cent. of the cases. Walton, on the other hand, prefers to perform a posterior gastro-jejunostomy at the time of closing the perforation, believing that he gets far better permanent results in this way. The danger of a gastro-jejunal ulcer supervening is

slight here, much slighter than when the perforating ulcer is duodenal and associated as usual with hyperchlorhydria. For the rare cases of true pyloric stenosis without suspicion of malignancy I perform gastro-duodenostomy or gastro-jejunostomy, with a distinct preference for the former, because it carries no risk of secondary jejunal ulceration or of vicious circle. For hour-glass stomach I prefer gastro-gastrostomy, which is a very safe operation and which was performed in the large majority of my 70 cases. In a third of these it was necessary to overcome pyloric or duodenal obstruction at the same time, and for this I think Finney's operation is much the safest and simplest. Sometimes a gastro-duodenostomy is easier and better, and occasionally a gastro-jejunostomy engaging the pyloric pouch is best.

For the majority of simple gastric ulcers without obstruction the choice has to be very carefully made between three operations, namely: (1) gastro-jejunostomy with excision of the ulcer, (2) partial gastrectomy, and (3) gastro-jejunostomy.

I agree with Walton that the first of these is the safest, best and most generally applicable; and I prefer the knife to the cautery for excising the ulcer. Walton records 244 cases with a mortality of 3.6 per cent., and an ultimate cure in over 88 per cent. His mortality in 246 partial gastrectomies for gastric ulcer was 15 per cent., but these were graver cases with larger adherent ulcers. The percentage mortality is naturally lower when gastrectomy is performed as a routine operation, and Von Haberer has a mortality of 8.14 and Finisterer 4.4 or less. Moynihan performs partial gastrectomy almost exclusively, and reports a mortality of 2 per cent.

I believe it is wise to remove every gastric ulcer if it can be dome without undue risk, so that it can be examined microscopically and perhaps an early carcinoma thus found and removed, or the development of carcinoma in a simple ulcer thus prevented; but the removal of the greater part of the stomach for a small ulcer does seem to me too extensive and unreasonable, although it may appear more radical.

Unfortunately, partial gastrectomy is no certain guarantee against the subsequent development of gastro-jejunal ulcer, and Walton mentions that in his 59 cases of gastro-jejunal ulcer four had followed previous partial gastrectomies. Moreover, it is now well known that a severe, if not intractable, form of anæmia not uncommonly follows the removal of the greater part of the stomach. Moynihan, Morley and Roberts, Hurst, and many others have recorded cases of this kind, and I have seen this sequel in two of my own cases, one after extensive partial gastrectomy for carcinoma, and one after removal of a little more than half the stomach for gastric ulcer. There can be no doubt, however, but that partial gastrectomy is by far the best operation for certain well-selected cases of chronic gastric ulcer, especially those affecting the pyloric segment which are unusually prone to become malignant, and are most easily and successfully treated by a limited partial gastrectomy, and also those large adherent ulcers which are not too high in the stomach and do not invade the neighbouring viscera. Finisterer holds that every gastric ulcer can be successfully treated by partial gastrectomy. He does not attempt to excise the base of penetrating ulcers, but detaches the stomach at their margins, thus making the operation much safer and easier. As a rule, fearing cancer I have adopted the Polya-Balfour-Moynihan type of extensive operation, but there is much to be said in favour of a more limited resection for simple gastric ulcer, and making a direct anastomosis of the stomach to the duodenum after the Billroth number one method, for it is more physiological and lessens the chances of secondary anæmia and ulceration.

Simple gastro-jejunostomy should be reserved for the few dangerous and difficult cases where the ulcer is large, penetrating, very adherent and high up, and the patient's general condition is bad. When adopted as a routine it is estimated that it will only cure about 40 per cent. Followed by careful medical after-treatment it may cure some apparently hopeless ulcers which may have been mistaken for cancers. It immediately relieves the patient's pain and facilitates his feeding, in a simpler and more acceptable way than a jejunostomy. In other cases the ulcer may so diminish in size that it can be excised, if necessary, at a later date.

In many of these cases the posterior operation is impracticable, and the anterior operation, with or without entero-anastomosis, has to be adopted. When the stoma has to be made high in the stomach an entero-anastomosis is often essential, either to prevent or to overcome vicious circle.

AFTER-TREATMENT

All patients who are fortunate enough to get well of a gastric or duodenal ulcer, either as a result of medical or surgical treatment, ought to take the very greatest care to prevent recurrence. With this object always in view they must live very carefully, avoiding all the errors and excesses that are known to promote recurrence. They must be given, and asked frequently to read, the most explicit and detailed instructions concerning their diet and habits, which must be obeyed for at least a year. It is a great mistake to allow

them to think that an operation cures them for ever, and absolves them from all troubles and care. Any return of symptoms must be adequately treated without delay.

CASE 1.—*Gastric ulcer, partial gastrectomy, appendicectomy.*

C. S., aged 37. General labourer; about 5 ft. 4 in. in height; very thin and pale.

Admitted 22nd September, 1931, for epigastric pain.

History.—He had a history suggestive of gastric ulcer for about five years, namely, pain in the left epigastric angle soon after food, which was relieved by vomiting and by taking water. The pain was severe enough to keep him awake at night. There was much wasting and he was 3 stone under his normal weight. He had been treated for over three years by his doctor and had taken much " bismuth " medicine. All his teeth had been extracted and false teeth provided. He had suffered a great deal from constipation. He denied any history suggestive of attacks of acute appendicitis. During the last three months he had been getting so much worse that he sought admission to the hospital.

Examination for occult blood in fæces.—Strong positive guaiac reaction. Well-marked acid hæmatin and faint hæmatoporphyrin present. Altered blood in large amount.

Test meal report (24th September, 1931).—Nothing abnormal.

X-Ray report (25th September, 1931).—Œsophagus shows slight achalasia. Stomach is normal in position, size, tone and peristalsis. It empties rather slowly in 4½ hours. There is a long spasmodic defect on greater curvature of pyloric antrum, with a tender niche opposite to its proximal part, indicating an active ulcer of pyloric antrum. Pylorus is eccentric. Duodenal cap and the rest of the duodenum are normal. Meal reaches hepatic flexure normally in 4½ hours.

The patient was anæmic, Hb=75 per cent. There was tenderness and resistance in the epigastrium to the left of the middle line, but no tenderness over the right iliac region.

Operation (28th September, 1931).—The appendix was found to be inflamed and œdematous, much enlarged and buried behind the cæcum. It was removed. There were many adhesions about the gall-bladder, duodenum and pylorus. About one-third of the stomach and one inch of the duodenum were removed, and the jejunum was joined to the stomach after the Polya-Balfour-Moynihan method.

The patient stood the operation well and made a rapid recovery, leaving the hospital on 21st October, 1931, with a very good appetite and no pain. By January 11th he had gained 20 lb. in weight. He was keeping strictly to his diet.

Upon examining the specimen after the operation the ulcer was found to be on the posterior wall of the stomach, within 1½ inches of the pylorus. It was 1 inch in diameter and penetrating deeply into adhesions on the front of the pancreas. It appeared to be non-malignant.

Microscopist's report on the ulcer stated that it was a simple ulcer with a necrotic base and fibrous walls.

CASE 2.—*Gastric ulcer, partial gastrectomy.*

A. S., male, aged 45, clerk.

Admitted to Guy's Hospital 22nd November, 1931, for vomiting and epigastric pain.

History.—He first noticed sickness following meals in July, 1931. This gradually became worse, with periods of complete absence of the trouble, until about a fortnight ago, when his doctor sent him to Mr. Bromley's out-patients. He was recommended to come in for investigation. The following day he was again sick, but has not vomited once since then. He states that no particular food brought on the sickness; he sleeps well, and has never been awakened by an attack. Bowels fairly regular. He smokes about 16 cigarettes per day. Until a month ago he was in the habit of drinking about 5-6 pints of ale per night. He has been on a light diet for four weeks. The pain has decreased, but there is still a dull ache.

Condition on admission.—Patient has a dull pain in the epigastric angle, but there is no guarding and only tenderness on deep pressure.

Report on fæces (23rd November, 1931).—Positive guaiac reaction. Hæmatoporphyrin present. No acid hæmatin seen. Altered blood present.

Report on X-ray.—Stomach shows a deep conical niche on the lesser curvature of the pyloric antrum, about 2 inches before the pylorus. There is an incisura opposite to it on the greater curvature. It is tender and indicates an active gastric ulcer. Duodenum and its cap appear normal. There is some delay in emptying the stomach, about one-sixth remaining after 4½ hours.

Test meal report.—Highly acid resting juice; rapid emptying; only traces of free HCL after the meal.

The patient complained of a dull aching pain fairly generalised, with tenderness in the epigastric angle. This was at once eased by the sickness. The pain used to come on about an hour after meals.

The teeth were septic and many of them were extracted as a part of the preparation for operation.

Hb test done (4th November, 1931).—Result: hæmoglobin=75 per cent., but the patient did not look anæmic.

Dr. Witts saw the patient and reported as follows: "I should advise surgical treatment of the ulcer. It would be of interest to have a W.R. I do not think ulcers of the pyloric antrum do well on medical treatment, and the diagnosis of simple ulcer in this situation is always uncertain."

27th November, 1931.—Negative Wassermann reaction.

The diagnosis was gastric ulcer, but with a fear of malignancy.

Operation (10th December, 1931).—A large ulcer about 1½ inches in diameter and deeply penetrating the lesser omentum was found. There were only a few enlarged glands along the lesser curvature and below the pylorus. No secondary growths could be found, but the mass was very large and hard, and was therefore thought to be a carcinoma. Partial gastrectomy was performed, a little more than half the stomach being removed, and then the jejunum was joined to the cardiac remainder in front of the transverse colon, with the proximal part of the jejunum attached to the lesser curvature 5 inches from the duodeno-jejunal flexure. Upon examining the specimen afterwards the diagnosis was still uncertain, but on the whole it was concluded that the ulcer, although so large and deeply penetrating with a hard base and edges, was not malignant. Resection was clearly the best treatment in any case.

Microscopic section proved "simple ulcer with necrotic base and fibrous walls."

The patient did very well and was discharged on 4th January, 1932.

CASE 3.—*Gastric ulcer, gastro-jejunostomy.*

L.M., male, aged 48.

Admitted to Guy's Hospital 5th September, 1931, under Dr. Mutch for epigastric pain and vomiting.

History.—Father died of cancer of the stomach at the age of 64. Three years ago the patient had an attack of gastritis having the same symptoms as he has now. He underwent a course of starvation and the pains disappeared for some time. The present attack came on three weeks ago, with epigastric pain 1½ to 2 hours after meals, lasting about one hour and relieved by taking more food. The amount of pain varies with the character of the food, but not with the quantity. It is worse after meats and fruit; it is of a dragging nature. Vomiting has been frequent and has generally relieved the pain. Lately the vomit has been coffee-coloured, and the patient recognised dark red blood in it a few days ago. He generally vomits less than a quarter of a pint at a time. He has always been costive, but a fortnight ago he was constipated for eight days and the last motion passed was black. He has lost a stone in weight during the last seven months. He has always smoked about 10 cigarettes and drunk about 4 pints of beer a day.

Condition on admission.—He is rather a nervous, anxious, wasted and anæmic man. His tongue is furred, his teeth bad and breath offensive. The abdomen is full, with some tenderness and resistance on the left side of the epigastrium and distension of the iliac and pelvic colon with fæces. The heart sounds are normal, but rather feeble. The blood pressure is 95 systolic and 56 diastolic. The blood count shows 4,000,000 red corpuscles per cm.m. and 4,000 white. The hæmoglobin was 52 per cent. The Wassermann reaction was negative.

8th September, 1931.—The patient lost a quantity of blood from the rectum last night, and again on the 19th. Therefore half a pint of blood was transfused on the 20th, bringing the hæmoglobin up to 50 per cent. again.

14th September, 1931.—The fæces gave a strong positive guaiac reaction with marked acid hæmatin and faint hæmatoporphyrin. These findings were repeated several times during the next fortnight. The urine and the blood urea were normal.

Diagnosis.—? gastric ulcer. ? carcinoma. Operation advised and accepted.

13th October, 1931.—The hæmoglobin estimation was 65 per cent.

27th October, 1931.—A transfusion of 13 oz. given and was followed by a rigor.

28th October, 1931.—He was transferred to a surgical ward. Radiographs showed a small high stomach, drawn to the left of the middle line, with a large crater on the posterior wall high up.

Operation (29th October, 1931).—After washing stomach out. Stomach small and drawn up. Very large ulcer on posterior wall high up, intimately adherent to large blood vessels and pancreas. Therefore the wound was enlarged upwards and the left rectus was cut across to allow an anterior gastro-jejunostomy to be made. The opening in the jejunum was about 18 inches from the duodenum. A lateral anastomosis was made, because the opening into the stomach was high and awkwardly placed, making the risk of vicious circle great.

2nd December, 1931.—Patient did well and went to a convalescent home for six weeks. Since the operation he has grown very much fatter and looks less anæmic and marvellously better in every way.

There is still some fear that this ulcer may be malignant, but I did not think so at the time of the operation. The margins of the ulcer were not hard or raised, and there were no enlarged hard glands to be found.

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Some Points in the Prophylactic Treatment of Dental Caries

By Mr. C. W. Shuttleworth

MR. CHAIRMAN and GENTLEMEN,—The prophylactic treatment of dental caries must depend, like that of treatment in any other disease, upon its ætiology. When that is understood, measures can be evolved to remove the cause with subsequent eradication of the disease.

Although much research work has been carried out in recent years and the knowledge of the cause of dental decay has advanced considerably, it is yet too soon to say that all the factors in the causation of the disease are known.

On examining the literature upon the subject of the ætiology of dental caries, one is struck by the number of opposed theories that are advanced. As Scott has very aptly put it: "The interpretation of dental caries, its causes, effects and prevention as seen particularly in infants and children, provides an encyclopædia of opinions from many sources. From the dentist, the internist, the endocrinologist, the biologist, and from the work-a-day physician, yes, even in a limited way from the psychologist. It is the operative dentist, however, who sees evidence of clinical decay, remedies the condition, and usually bothers himself but little with its genesis. On the other hand the biologist, the internist, the endocrinologist and the physician, especially the pediatrist, have no interest in the clinical manifestations of tooth decay, for their research and studies lead them into the field of cause and effect. Therefore, 'many men, many minds.'"

To deal with all these theories in detail is quite beyond the scope of this paper. However, they can be divided into roughly two classes: firstly, those theories that consider that dental caries is a disease entirely local in origin and that predisposition is a matter of the presence or absence of stagnation areas where food debris, particularly carbohydrates, can collect and undergo fermentation. These are embodied in Miller's chemico-parasitic theory of the cause of dental decay and the one that has gained general acceptance at the present time. Secondly, there are a number of investigators who, while accepting Miller's theory as an exciting agent, consider that caries cannot start in a tooth unless there is first a lessening of the resistance of either the tooth substance itself or its surroundings to the attack of acid-forming bacteria. They further consider this predisposition is brought about by some disfunction in the normal working of the body.

In considering prophylaxis in relation to dental caries, it is essential to consider fully the possibilities of a predisposition, for if this theory should prove tenable it would be a valuable weapon in the future attempts at prevention.

It will be useful here to consider on what grounds this belief in a predisposing cause rests. While the chemico-parasitic theory gives a very good explanation of the exciting cause, it does not give a complete answer to the problem of ætiology. It does not give an explanation of the immunity of some people's teeth to decay. Such an immunity, according to Broderick, is recognised by all observers; neither does it explain why some teeth, kept as clean as patient and dental surgeon can keep them, are subject to rapid and recurring caries, and yet a mouth that can be offensively dirty is relatively free from decay. By discovering the cause of this immunity or susceptibility in individuals it may be possible to arrive at a predisposing cause.

The susceptibility of teeth to caries that have been affected by hypoplasia has for many years occupied the attention of investigators. Because of defects in structure and calcification the inference has been made that they may be especially subject to the onset and progress of the disease. Mrs. Mellanby examined a number of milk teeth and claimed that 92.2 per cent. of the teeth examined showed absolute agreement with the direct relationship between structure and caries, while only 7.8 per cent. were out of harmony with this. Black does not believe that susceptibility to caries lies in the tooth structure, but in the surroundings of the tooth, and that poor calcification would have no ill effects. But, as Kirk has

pointed out, it would affect the rate of tooth destruction once it started.

Sir Charles Tomes taught that enamel was a non-vital structure, and a good many authorities still hold this to be true. If this is so, then the enamel differs from all other structures in the body, with the possible exception of the lens of the eye, in being entirely unaffected by the nutritional and metabolic changes in the body, and because it contained no organic material it cannot possess any powers of resistance. Other observers hold out a possible circulation in the enamel, and it is interesting to note some experiments that have a bearing on this subject.

Malleson working on decalcified enamel described a prism cortex or cuticle, in addition to the calcified enamel prisms and interprismatic substance, which remained after decalcification and could be stained with hematoxylin. It was presumably of an organic nature.

Dr. Fish, in recent research work on the lymph supply of dentine and enamel in the dog, states that solid methylene blue introduced into the pulp was carried into the lymph spaces of the dentine and from there crossed the amielo-dentinal junction to penetrate the sheaths of the enamel prisms; he goes on to state that extracted human teeth sometimes show similar conditions.

Mummery, in a Medical Research Council's Report, demonstrated the presence of translucent zones in enamel similar to those well recognised as occurring in dentine; these he believes are formed in the same way and have the same function as the translucent zone of dentine, that is, they are an attempt to limit the destruction of tooth tissue by the formation of a highly calcified area. Leon Williams, who in 1896 denied the possibility of a circulation in enamel, acknowledges in 1923 that, owing to his omitting to make use of stains, he was mistaken in his conclusions, and now agrees that this is possible.

Although these facts do not definitely prove that there exists a circulation in enamel, by the aid of which lime salts may be deposited or removed from that tissue, in response to alterations in metabolism, they are decidedly suggestive.

Mrs. Mellanby has carried out some important experiments on the relationship of diet to caries. Her results seem to show that dental decay if not actually prevented is at least slowed by nutrient factors.

The experiments were carried out on a number of children with the view to finding if the incidence and rate of progress of caries in teeth already erupted could be lessened by the adoption of certain diets. Three institutions arranged on the cottage home system were chosen. All the children were recruited from the Birmingham area and belonged almost exclusively to the poorer labouring classes. The basal diet was similar in the three homes—generous, but not particularly rich in fat-soluble vitamins. The children's ages ranged from 5 to 14 years. Every child had a tooth brush, and most of them cleaned their teeth twice daily. Dental treatment was provided by a visiting dental surgeon at each institution.

The experiment consisted in making simple additions to the standard diet of each institution.

In institution I the addition consisted of treacle 1-1½ oz. daily per child, according to age.

In institution II one group received a ration of olive oil 1-1½ tablespoonfuls, according to age. A second group received a similar amount of a solution of irradiated ergosterol in olive oil.

In institution III a group of children received a daily ration of cod liver oil.

By the adoption of this system it has been possible to compare (1) the effects of adding to the diet a measured ration of treacle, olive oil and cod liver oil; and (2) to compare the effects of giving a measured amount of olive oil with those obtained from giving the same amount of oil to which radiostol has been added.

Every child was submitted to a dental inspection at the beginning of the experiment, and subsequently at six-monthly intervals. Very complete dental records of each child's mouth were kept on individual charts.

The children were supplied with these augmented diets over a period of two years; at the end of this period the data was collected and examined and showed the following interesting results.

In institution I (treacle) there was a 10.33 per cent. increase in the number of carious teeth at the final inspection.

In institution II (olive oil), an increase of of 7.63 per cent.

Whereas in institution III (cod liver oil) there was an increase of only 2.97 per cent. in the number of carious teeth.

In the two groups in institution II the olive oil group showed an increase of 6.61 per cent.

The increase in the radiostol group was only 2.09 per cent.

From a comparison of the figures in institution III with those of institutions I and II there seems to be a significant retarding of the carious process in those children receiving an addition of cod liver oil to the diet.

Similarly, comparing the olive oil group and radiostol group in institution II, the similarity of results obtained from the use of cod liver oil and radiostol respectively suggest strongly that the

potent factor in securing this retardation is Vitamin D, inasmuch as it is common to both substances.

The presence of fat-soluble Vitamin D in the diet is known to be necessary if sufficient calcium is to be absorbed for bodily requirements. In the above experiment it has been shown that the presence of extra supply of Vitamin D has resulted in a noticeable slowing of tooth decay. This rather suggests that caries may be due to an insufficient supply of this accessory food factor. At the same time, the fact that the spread of caries was only checked and not completely arrested makes me wonder if there is not also a deficiency of calcium in the diet which is not completely rectified when Vitamin D is applied.

Let us now consider some of the factors in the absorption and utilisation of calcium. There are two factors concerned in this. Firstly, the gastric acidity. The calcium ingested combines with the hydrochloric acid in the stomach to form calcium chloride. This is an easily ionisable salt of calcium and is quickly absorbed. Secondly, a deficiency of fat-splitting ferments in the bile or external pancreatic secretion may lead to the presence of excessive quantities of fat in the bowel. Similarly, the ingestion of large quantities of fat gives rise to an abundance of fatty acids. These form insoluble calcium soaps which are excreted unchanged in the stool. Similarly, if the acid-base equilibrium of the body deviates either to the acid or alkaline, it renders the proper calcium retention and utilisation impossible. Acidoses and alkaloses are uncommon, except in acute or advanced disease. Minor degrees of deviation of the tissular acid-base equilibrium are, however, extremely common. Civilised diet tends to contain an excess of acid ash-producing foods, such as animal protein, cereals and bread. In a series of researches on human subjects, Ragnar Berg has shown that a diet which does not contain a sufficiency of base ash-producing food, such as fruit and vegetables, renders proper utilisation of the minerals and protein of the diet incomplete.

It has been shown that, with a tendency to acidosis brought about by over-production of inorganic acids, inorganic bases may be used to neutralise them, and in this manner the salts of calcium and phosphorus will be lost to the body. Any condition that tends to bring about an acidosis, if sufficiently prolonged, will bring about a calcium starvation. It is possible in this way for a diet to have an ample supply of calcium, but if the acid end products of metabolism overbalance the alkaline, a definite demineralisation of the body may result.

It is absolutely essential in a condition of acidosis that the blood reaction should be kept within narrow limits in order to maintain life ; therefore, at the risk of bone destruction, calcium will be withdrawn for neutralisation purposes and excreted.

When this acidosis and calcium shortage occurs during growth it may lead to the bones being incompletely ossified, and in the production of rickets.

Briefly, then, if the acid-base equilibrium of the body is at fault and there is a tendency to an acidosis, the calcium which normally is required for the purpose of growth and maintenance of proper bodily function will be used to neutralise excess acid and so be lost to the body.

It was mentioned just now that Mrs. Mellanby's experiments did not show complete arrest of caries, and it was suggested that this might be due to lack of calcium in the diet and that this deficiency was not made good by the application of Vitamin D.

It is possible, however, that her diet did not contain a sufficiency of base-producing foods, and that some of the calcium was utilised in neutralising the acid end products of metabolism and was so lost to the body.

Broderick considers that a predisposition to dental caries is intimately associated with this acid base balance of the blood. He brings forward evidence to show that attempts on the part of the body to compensate for a tendency to an acidosis are mirrored in the saliva, and that such people have a saliva whose hydrogen ion concentration is definitely on the acid side.

McIntosh, Warwick James and Barlow state that : " Saliva appears to be intimately connected with the occurrence of caries, being more acid in those susceptible to the condition than in those immune. It appears that in adults the saliva in cases of caries tends to be rather more acid than in pyorrhœa."

Broderick is in agreement with this, and considers that a saliva with a reaction on the acid side shows a distinct predisposition of the individual to dental caries. He points out the antagonism between dental caries and pyorrhœa, and suggests that the conditions that predispose to pyorrhœa lead to an immunity to dental decay.

From Starr's work on the saliva there seems to be a possibility that the hydrogen ion concentration in saliva is under metabolic control. He has shown that there is a definite correlation between the hydrogen ion concentration of saliva and the CO_2 content of the alveolar air.

Physiological acidosis and alkalosis are brought about by the process of digestion. Starr has shown that these alterations also bring about

changes in the hydrogen ion concentration of the saliva. Voluntary deep breathing in the open air, by washing out excess of CO_2 from the blood, produced a tendency to an alkalosis, and raised the PH of the saliva by 0.15 to 0.6 in different individuals.

Starr's work was undertaken primarily to investigate the metabolism of a class of stammerers, a class of patients it is possible to divide into sub-breathers and psychopaths. In the former, the chief characteristic is that they do not properly discharge their CO_2 owing to defective breathing habits; and the latter group, owing to their chronically excited state, over breathe and wash out excess of CO_2.

Before comparing the salivary reaction of these two groups, the reaction of a number of normal individuals was taken for comparison. When the three groups were compared it was found that the reaction of the sub-breathers was to the acid side of PH 6.3, while the psychopaths were all to the alkaline side of PH 7.0, the normals being between the two.

The findings of Starr seem to suggest that any alteration in the acid-base equilibrium of the body brings about an alteration in the hydrogen ion concentration of the saliva.

Weston-Price's visualisation of dental caries deals with the matter fully. He gives a very full account of the part that may be played by the saliva in dental decay.

In his explanation he speaks of the iso-electric point of saliva, by this is meant that a particular hydrogen ion concentration, which differs in the case of each protein, no migration of the protein in the electric field is to be observed. This implies the presence of protein anions and cations in equal concentrations.

The normal reaction of the saliva is slightly on the alkaline side of the iso-electric point. The normal tendency, then, is for the calcium ions to have an opposite charge to the tooth substance and therefore they will be attracted to it, and the process of intensive calcification will go on by purely stoechiometrical process.

In normal conditions of the mouth the factor of safety is sufficiently on the alkaline side of the iso-electric point of saliva to maintain a constant potential between the ionic calcium of the saliva and of the tooth, to keep calcium continually entering the tooth structure.

If the alkaline reserve of the saliva, however, is decreased, it is much more easy for local zones of bacterial growth to create a condition just over the iso-electric point on the side of active acidity. By this is meant that if the alkaline reserve is decreased, bacterial action on any carbohydrates lodged between the teeth may produce sufficient acid to still further change the local acidity of the saliva at the point in question, well below the iso-electric of the saliva. This would have a marked difference of potential and completely reverse the forces between the tooth and the medium surrounding it, with the effect that in such teeth and with such an environment the decay takes place much more rapidly than in the ordinary mouth, where the normal factor of safety is in general maintained.

In this theory of Weston-Price's we see that the reaction of the saliva is of definite importance in the preservation of the teeth. We see also that it is not so much an alteration to one side or the other of the point of absolute neutrality, but rather an alteration to one side or the other of the iso-electric point, which is not the same as absolute neutrality, but rather to the acid side.

If we accept the theory of Miller that the exciting cause of dental caries is the fermentation of carbohydrate foodstuffs in contact with the enamel and realise that, though it explains dental caries, it does not give an explanation of the immunity of some individuals, we must presume a predisposing cause, without which the fermentation of carbohydrates, which must be present in many immune mouths, cannot destroy the enamel. We see in Weston-Price's explanation a reason for this immunity or susceptibility. It becomes a matter of salivary reaction, and this reaction will depend, as we have seen, on the ease with which the acid base balance of the blood is maintained.

Carbohydrates have received general condemnation by the dental profession on account of their fermentability and direct destruction of the enamel. It will be interesting to see the effect of the metabolism of these substances upon the acid-base equilibrium of the body.

If there is excess carbohydrate in the diet it will tend to produce an acidosis on account of its incomplete oxidation, and, as shown by Howe, the alkalinity of the saliva is thereby reduced. Kirk has also shown that the cutting down of the excess of carbohydrate raises the alkalinity of the saliva.

On the other hand, it has been shown that lack of sufficient carbohydrate in the diet is liable to produce an acidosis owing to interference with the incomplete metabolism of fats. This is particularly liable to occur in children in whom the ability to store sugar is small. Dr. Hector Cameron believes that the question of sugar shortage plays a large part in the faulty metabolism of the nervous child, and points out that in these children a ketonæmia is a common occurrence.

This condition would also tend to produce an increased hydrogen ion concentration of the saliva in the same way as overfeeding with carbohydrates.

Here we have an example of two extremes in which there is a possibility that underfeeding as well as overfeeding with carbohydrates may be responsible for dental caries. It would seem, then, that before sugar and sweets be condemned wholesale, the condition of each patient should be considered.

In an earlier part of this paper it was said that if it was possible to find a predisposing cause of dental caries it would prove a valuable weapon in the future prevention of the disease.

In the evidence put forward an attempt has been made to show that the underlying cause of a susceptibility to dental caries may lie in a tendency to an acidosis. The important factor, therefore, in the prevention of dental decay lies in the prevention of this tendency to an acidosis.

It must be borne in mind that it is the compensation of an acidosis that brings about the ill-effects on the teeth, and not the condition of acidosis itself. It is the working of the compensatory mechanism that brings about an alteration in the saliva. The aim of preventative treatment must be to bring about this compensation in such a manner that the ill-effects will be prevented or reduced to a minimum.

In spite of a knowledge of the underlying cause of dental caries, it may be impossible to tackle the problem of the acidosis either because of the difficulty of arriving at a certain diagnosis, or because of certain inherent difficulties in removing them when discovered. In these cases the principles of treatment must lie along the lines of providing sufficient alkali for the neutralisation of the excess acid, and in this manner prevent the utilisation of such precious salts as those of calcium for a purpose for which a more easily assimilated and more quickly obtainable alkali will serve.

The point that requires consideration, then, is that of diet, and the important factor here must lie in providing a sufficiency of basic salts to balance the acid salts that result from the metabolism of foodstuffs and the process of living.

On this subject Forbes says : " This generation feed themselves on an abundance of protein, especially in the form of meat. Meat does not contain enough mineral base to neutralise the mineral acids which may be produced from it in the body."

Vegetables and fruit, because of their greater excess of basic over acid mineral elements, are much better suited to supplement meat than the cereal preparations, none of which has any considerable preponderance of mineral base.

With regard to this question of diet, the drawing up of a diet table is to be deprecated on the grounds that adherence to specified foods causes many useful articles of diet not to be utilised. The point to be aimed at is a good mixed diet with the avoidance of an excess of any one form of food, remembering particularly the value of fresh vegetables and fruit as possessing a great excess of alkaline end products over acid and being rich in Vitamin D. Cereals in the form of milk puddings, although useful in that they contain milk, are not good foods, as the cereal parts produce an excess of acid. Incidentally, Mrs. Mellanby, in some experiments on puppies, has shown that cereals contain some substance or substances which specifically hinder calcification.

In infant-feeding too much stress cannot be laid on the importance of breast-feeding. In human milk there is less protein in proportion to available alkali than in cow's milk. The high fat content of cow's milk would hinder the absorption of calcium, as part of it would form a difficult soluble calcium soap with the fats and be excreted in the fæces. Another point which must not be overlooked is the importance of the mechanical action of suckling on the normal development of the jaws and teeth.

With regard to the treatment of an existing tendency to an acidosis, two methods to bring about an equilibrium between acid and base suggest themselves. Firstly, the administration of alkalies in sufficient quantity to preserve the calcium salts in food, and, secondly, the removal of the acid by elimination.

Alkali can be administered in the form of large doses of sodium bicarbonate. It must not, however, be administered with the food, as it would interfere with the acid condition of the stomach, and, as already pointed out, the absorption of calcium depends on the acidity of the stomach as also does the acid digestion of the food. The best method is to give a dose in a glass of warm water first thing in the morning on an empty stomach. In this way it passes directly through the stomach into the duodenum and is rapidly absorbed by the intestinal mucosa.

By this means sufficient alkali can be supplied to the body to preserve the buffers of the blood and prevent an occurrence of the condition.

There now remains the problem of dealing with the excess of acid. The phosphate content of the blood has an important bearing on the elimination of acids via the kidneys in the form of acid sodium phosphate. It is obvious that a shortage may occur as the result of a long-standing acidosis requiring compensation by this method. In order to be sure that the intake of phosphates is adequate

it is sometimes useful to administer them as a medicine in the form of syrup of phosphate.

A second method of eliminating excess acid from the body is by means of increased elimination of carbon dioxide from the lungs. By this means the body is relieved of the necessity of neutralising it in a condition of acidosis.

This increased elimination of carbon dioxide from the lungs can be brought about by a system of overbreathing. The important element in this lies in the complete expiration, the full inspiration following as a matter of course.

In Starr's experiments mentioned earlier in this paper, it was seen that the hydrogen ion concentration of the saliva bore a definite relation to the carbon dioxide content of the alveolar air; it was also seen that the group of patients called psychopaths definitely overbreathed, with the result that their saliva was more alkaline than a group of normal individuals used as controls. There is some ground for believing, then, that by increased elimination of carbon dioxide by a system of overbreathing it is possible to raise the alkalinity of the saliva.

To summarise briefly, an attempt has been made to show that the underlying cause of a susceptibility to dental caries lies in a tendency to an acidosis. This acidosis is continually being compensated, and by the process of compensation valuable alkali in the body is being used for neutralisation of the acid end products of metabolism. The result of this is so to lower the alkali reserve of the saliva that acid-forming bacteria lodged with carbohydrate debris between the teeth can create a local zone of relative acidity, where they can flourish and thus bring about the destruction of the enamel.

By assisting in the elimination of the acid from the body, and by supplying sufficient alkali to neutralise any acid excess, it is possible to reduce this susceptibility to the minimum.

So far only the treatment of the predisposing cause of dental caries has been dealt with. Local treatment, however, is of the utmost importance. As mentioned before, the exciting cause of dental caries is the fermentation of carbohydrate food debris, lodged on or between the teeth, by bacteria. Local treatment must be aimed, then, at reducing the possibility of the lodgment of this debris to a minimum.

It is most important from this point of view that the jaws should be well developed and the teeth in proper occlusion. If the jaws are underdeveloped the teeth will erupt out of the arch and there will be overcrowding, with the formation of large stagnation areas where carbohydrate debris can collect.

The proper growth of the jaws and teeth can only be brought about by correct feeding. In a preceding part of this paper the importance of breast-feeding to promote the proper growth of the jaws was mentioned; another important point is the giving of food in solid form as soon as the child needs food other than milk. This will promote gnawing and chewing, which will not only bring about the proper development of the jaws, but also good habits of mastication.

In an earlier part of this paper mention was made of the value of fresh fruit and vegetables. These foods are also important from their local action, as they are definitely tooth-cleaning, not only because of their mechanical action, but also from the fact that they stimulate the flow of saliva, which, by its flushing action, tends to remove any debris lodged around the teeth. All meals should be finished with some form of tooth-cleansing food.

Any kind of starchy food should be avoided. It is interesting to note that under this heading come such foods as rice, tapioca, oatmeal porridge and most patent foods. It was mentioned earlier on that foods of this description were to be avoided owing to their not containing a sufficiency of base ash. We now see that they have a detrimental effect locally as well, for they cling round the teeth and are very easily fermented by the acid-forming bacteria.

We now come to artificial methods of removing carbohydrate food debris from around the teeth. This naturally brings us to the tooth-brush. There is no necessity to go into the details of its use as we are all familiar with them. The points to remember about it are that it should be small and the bristles soft, and, when not in use, it should be left either in a weak antiseptic solution or in one of the special antiseptic containers sold for the purpose, and the brush should be renewed frequently.

The type of tooth powder or paste used is not a matter of vast importance. A powder is probably better than a paste. Some proprietary pastes are inclined to be too abrasive, and, consequently, should be avoided. On the other hand, some are too soapy and leave a film over the teeth.

One of the best powders is that made according to the prescription of Guy's Hospital. It is pleasant to the taste, sufficiently abrasive to be cleansing, mildly antiseptic, and not too soapy.

A valuable adjunct to the tooth-brush, of course, is a mouth-wash from the point of view of its mechanical action in flushing food debris from between the teeth. For this purpose plain water is as efficacious as any containing drugs. If some

form of mouth-wash is required, one that stimulates the flow of saliva is preferable to a strong antiseptic. Mouth-washes containing citric or tartaric acid are harmless to the teeth and, by promoting the flow of saliva, they influence the alkalinity of the mouth and increase the flushing action of the saliva.

To conclude, the point that has been stressed in this paper is the possibility of a predisposing cause to dental caries, and it is suggested that the important factor in this is the acid base balance of the blood, and that by attention to diet both from the point of view of accessory food factors and the balance between the acid and basic end products of metabolism, it may be possible to bring about a condition where tooth decay is at a minimum. While stressing this point, the importance of local hygiene must not be forgotten, and in this respect it is interesting to note the similarity between the diet advocated upon general considerations and that from the point of view of local considerations. Both avoid cereals and both advocate the inclusion of fresh fruit and vegetables in the diet.

In concluding, gentlemen, I should like to say that I fully realise the controversial nature of the subject of dental caries and its prophylactic treatment, particularly the aspect visualised in this paper. But as dental surgeons, always working in the mouth, we are inclined to become very local in our ideas, and to lose sight of the fact that general bodily conditions may inhibit or accelerate dental decay.

A Case of Intussusception with Unique X-Ray Pictures

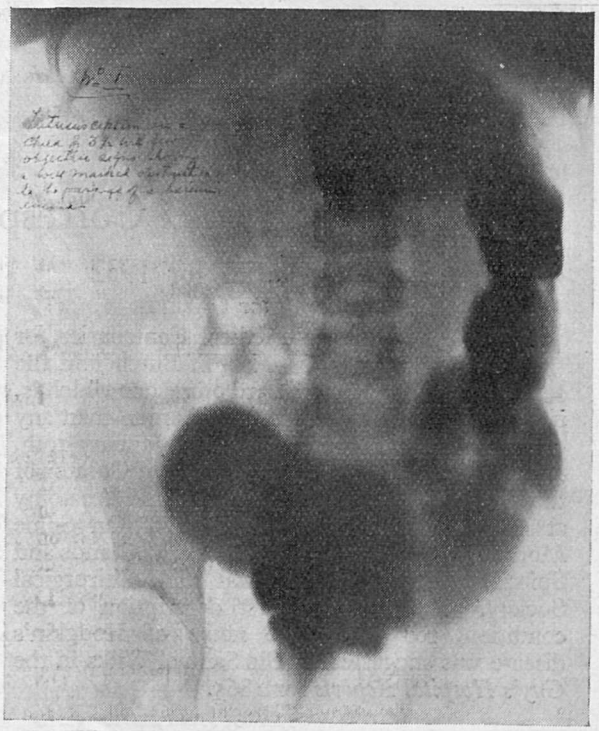
By S. M. Wells, Esq., F.R.C.S.Eng.

I WAS called to see a child who woke up suddenly, early one morning, screaming and complaining of acute abdominal pain. On arrival at 8.30 a.m. I was told that the child, a well-nourished girl of 3½ years, had been perfectly well except that during the two previous days she had at times complained of slight abdominal discomfort. She had, however, been quite happy otherwise, taking her food well, and the bowels had acted as usual. On the morning in question she woke up at 5 with acute abdominal pain.

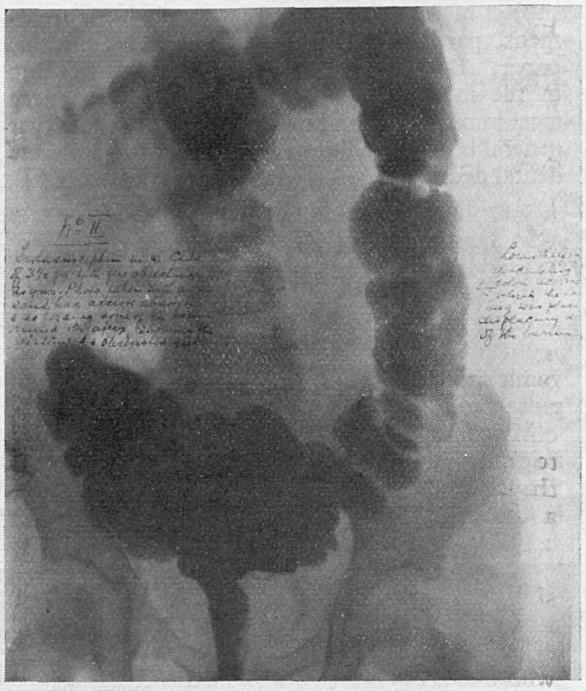
When seen and on observing her she seemed fairly comfortable, but occasionally she would move about and groan as if in pain. I was shown one vomit, yellow bile-stained fluid; temperature subnormal, pulse 120. Hernial orifices normal. On examining the abdomen when not in pain it was soft and supple. Already with the possibility of an intussusception in mind I tried to feel the classical tumour. At times I thought I could make it out, but came to no definite conclusion. Rectal examination was negative; no tenderness, no lump could be felt, and there was no blood on the examining finger. There was another vomit of the same character in my presence.

I informed the parents of my suspicions, ordered no food to be given beyond a little sugared water and in small quantities if thirsty, and left instructions for an enema to be given and to watch the result for the presence of blood, saying I would call later in the morning. At 10.30 I was informed over the 'phone that there was blood in the enema return mixed with fæcal matter. A consultation was arranged. At this visit there had been another vomit similar to the others. Temperature normal, pulse 130.

My colleague, Dr. Münnich, a man of considerable surgical experience, after examining the child very carefully and informed of my suspicions, was in the same difficulty that I had been earlier in



the morning with regard to the presence of a tumour, and on the whole was more inclined to favour an inflammatory condition of the colon. The child now was much more tranquil than on my first visit, when I had watched it very carefully. I could, however, not get rid of my first impression and suspicions, with the result that the child was taken into hospital to see if with a barium enema the X-rays could give us any further information.



The child was now quite comfortable, was talkative and cheerful, and evidently in no pain. As will be seen by the X-ray picture, this clinched the diagnosis. The accompanying photographs are extremely interesting. No. 1 shows a perfectly straight line of obstruction to the barium, practically in the middle of the transverse colon, with the descending colon and sigmoid well filled. No. 2 was taken with a sandbag across the abdomen in order to increase the pressure inside the gut. The obstruction shows as in No. 1, but the increased pressure has forced some of the barium round the apex of the invaginated gut, showing the outline of the proximal part of the transverse colon very much dilated. The pressure applied is also shown in the lower half of the descending colon across which the sandbag was lying, displacing some of the barium.

Examined again on the table under the anæsthetic, no tumour could be felt. The apex of the intussusception was at the ileocæcal junction, and about 3 inches of small intestine were invaginated. As the child's condition was good the appendix was removed. Convalescence was uneventful. The barium enema was returned unstained with blood the next day.

The interest in the case lies in the very acute initial symptoms, the gradual disappearance of these, the absence of a palpable tumour, the one and only show of blood in small quantity and the aid in diagnosis by the X-rays by which delay was avoided and the operation performed under satisfactory conditions.

Correspondence

Medical Centenaries for 1932

To the Editor of the GAZETTE

SIR,—The list of "Medical Centenaries for 1932" given by Mr. H. T. Butcher in the *Gazette* for January 23rd omits one which is, perhaps, of more interest to Guy's men than any of those which are mentioned. On January 10th, 1832, Thomas Hodgkin, who was then Curator of the Museum and Lecturer on Morbid Anatomy at Guy's, read his famous paper, "On Some Morbid Appearances of the Absorbent Glands and Spleen," before the Medical and Chirurgical Society. This was the first description of the condition, for which the name of Hodgkin's disease was suggested by Sir Samuel Wilks in the *Guy's Hospital Reports* for 1865.

Yours, etc.,

Windsor. ARTHUR F. HURST.

NOTICE

The First "Fripp" Lecture

The late Sir Alfred Fripp by his will left a sum of money to found an annual lectureship on "Happiness and Success." The first lecture will be given by the Right Hon. Stanley Baldwin on Friday, February 26th, at 5 p.m., in the Great Hall, University College, London (entrance in Gordon Street).

Admission will be free, but tickets should be applied for accompanied by a stamped addressed envelope not later than February 20th to the Secretary, 19, Portland Place, W.1.

Sport

Rugby

Guy's v. Birkenhead Park

VISITING Birkenhead Park on Saturday, January 16th, Guy's suffered another reverse when they were defeated by 2 placed goals and 3 tries (19 points) to a placed goal and a try (8 points).

There were several changes in the side which fared so badly against Cardiff. Windsor Lewis and John Howell were able to resume at half-back, but Fichardt, Ashdown, Robin, Cunard and Hogbin were all unable to turn out on account of examinations and illness.

Guy's started off in a manner which suggested that they would over-run the home side and pile up a big score, but, after securing an early lead of eight points, the Hospital tired under pressure and were eventually well beaten.

The revival of the Park side, who were at full strength, was to a large extent due to the brilliance of J. V. Richardson and T. C. Knowles, who were at the top of their form.

Guy's were the first to attack, through an excellent bout of passing between Alexander, Windsor Lewis and Howell which kept play well inside the Park half. In a further attack, Windsor Lewis snapped up an opportunity and, with a fine turn of speed, beat Brigg, the full-back, and scored near the corner flag. For a time the Hospital backs continued to play clever football, and their efforts were again rewarded when Johnson got away on the wing and crossed for a try, which Clegg converted from near the touch-line.

The home side responded with some brilliant forward rushes, and Richards created an opening for J. B. Charles to race over the line for an unconverted try.

A minute before half-time Wilson accepted a fine pass from Richardson and scored a try between the posts, which he converted himself to make the scores level.

After the interval, the Park played capital football, and gradually they wore down the Hospital defence and scored on three occasions.

J. B. Charles, their speedy winger, re-opened the scoring after Knowles and Richardson had created the opening. D. Evans added a second later on, and F. Charles completed the scoring after an excellent solo effort, G. S. Wilson converting one.

Team.—W. B. Clegg; H. G. N. Cooper, P. C. Alexander, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, J. Howell; J. S. Batchelor, A. Heberlein, J. A. T. Rowlett, R. J. Drummond, R. G. Hunt, T. Morgan, P. K. Robinson, A. R. Clarke.

Guy's v. Gloucester

AT Kingsholme on Saturday, January 23rd, Guy's were unable to repeat their success of last season, and at the finish the home side won by 2 placed goals, a penalty kick and a try (16 points) to a penalty goal and a try (6 points).

With the exception of Robin, Morgan and Fichardt, Guy's were at full strength. On the other hand, Gloucester were without their International winger, C. C. Tanner, who strained himself badly in the match against Wales.

The Hospital started the game with plenty of confidence, and Ashdown soon slipped past Parker, only to be collared when nearing the line. Guy's were sent back as the result of a penalty kick, and, following a loose rush by the home forwards, Drummond was adjudged offside and Boughton, with a splendid kick, landed a goal.

Following this reverse, Guy's tried hard to find an opening, but were unlucky on two or three occasions. Windsor Lewis had a drop at goal charged down, and soon after, following an exchange of kicking, Clegg went through the defence to Boughton, the full-back; he passed to one of the forwards, who was tackled by Williams within a few yards of the line, just when a score appeared certain.

Keeping up the pressure, Guy's kept the home side in their half for some minutes, and it was only Boughton who prevented them from scoring.

However, the Gloucester forwards eventually worked their way to the Guy's half, and James, after cutting through the centre, started a fine round of passing between McCanlis, Saxby and Brooks. On two occasions Hook, the wing, looked certain to score, but Johnson was too fast for him and he was thrown into touch before reaching the line.

Guy's had a temporary excursion to the home line, but were quickly driven back, and, in spite of the excellent defence of the Hospital backs, Welchman gathered the ball nicely in one of Gloucester's forward raids and threw himself over the line for a try, which Boughton was unable to convert.

Windsor Lewis, as the result of some well-judged kicks to touch, kept Gloucester in their own half, and eventually Ashdown picked up a stray pass from McCanlis and cleverly eluded Boughton to score a splendid try behind the posts, but Hogbin unfortunately failed to convert.

Soon after the interval, Gloucester increased their lead as the result of a great effort by Fifield, their scrum half, who slipped round the blind side and was nearly over. The forwards carried on the

movement and Wadley touched down for Boughton to kick a magnificent goal from near the touch-line.

Guy's held a territorial advantage on resuming, but the defence of the home side was very good, and eventually McCanlis relieved with a run to Guy's 25, where he cross-kicked, and in the scramble that followed Wadley appeared to touch down, but Guy's received the benefit of the doubt and the referee ordered a drop-out.

Following a clever run by Fifield, Parker passed back to K. Smith, and the latter, with a clear field, was presented with an uninterrupted run behind the posts. No charge was allowed, and Boughton kicked an easy goal.

After this, several penalties to Guy's did not bring any result, and, following an individual effort by Windsor Lewis, Johnson raced hard for the corner, and was only brought down near the corner flag.

The Hospital continued to have the best of matters, and it was sheer bad luck which prevented them from scoring. Eventually, Guy's were awarded a penalty, and this time Hogbin made no mistake and converted with ease.

A kick ahead by Hook nearly led to another Gloucester score, but Clegg saved, and eventually he set the threes in action, but a glorious tackle by McCanlis just prevented Ashdown from crossing again.

Team.—W. B. Clegg; D. E. Ashdown, J. E. Giesen, P. C. Alexander, A. G. Johnson; W. H. Lewis (Capt.), J. Howell; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, R. G. Hunt, D. M. Leeming, J. Cunard, R. A. P. Hogbin, A. R. Clarke.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.
December, 1931.
B.M., B.Ch.

Anatomy and Physiology.
G. O. Jelly

Obstetrics.

J. M. Burtenshaw	W. J. Cotton

Pathology.

R. H. Bolton	D. W. Geidt
A. C. Cox	R. F. Lomax
C. H. Fagge	W. H. Owles

Forensic Medicine and Hygiene

P. M. Bishop	W. H. Greany
R. H. Bolton	W. H. Owles
H. G. N. Cooper	

Materia Medica.

C. H. Fagge	D. W. Geidt

January, 1932
DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

PART I.
J. M. Lees

CONJOINT BOARD.
January, 1932.
PRE-MEDICAL EXAMINATION.

PART I.
Chemistry and Physics.

W. J. R. Morgan	G. A. B. Hoby
†D. Tudor Williams	*A. E. A. Shaw
W. H. Groom	

† Physics only. * Chemistry only.

PART II.
Elementary Biology.

W. H. Groom	D. W. Harvey
T. J. M. Lowry	D. A. Ibbetson
D. K. Toulson	M. M. Maclaire Hillier
R. J. N. Corfe	J. C. Keay
G. R. Down	J. L. MacDougall
W. I. N. Forrest	W. R. G. Morris
E. A. Forrester	J. Patterson
T. A. Turnbull	J. E. C. Peacock
C. H. Greaves	R. G. Siggers

SOCIETY OF APOTHECARIES OF LONDON
January, 1932.

Midwifery.
F. Crowther

Forensic Medicine.
L. G. Yendoll

Papers by Guy's Men

C. S. Gibson. Organic chemistry, general and specialised. *Nature*, 1932, cxxix, 40.

W. W. Payne. Acute rheumatism and sedimentation rate. *Lancet*, 1932, i, 74.

G. H. Percival. Epidemiology of tinea capitis. *B.M.J.*, 1932, i, 93.

M. Sorsby. Deafness and its prevention. *Lancet*, 1932, i, 165.

C. P. Symonds. Otitic hydrocephalus: report of three cases. *B.M.J.*, 1932, i, 53.

W. E. Tanner. Ruptured tubal gestation. *Lancet*, 1932, i, 132.

E. W. Goodall. William Budd, a forgotten epidemiologist. *Proc. R.S.M.*, 1932, xxv, 277.

F. D. Howitt. Idiopathic hydrarthrosis. *Proc. R.S.M*, 1932, xxv, 326.

E. P. Poulton. Obesity. *Proc. R.S.M.*, 1932, xxv, 347.

A. F. Hurst. Achlorhydria and achylia gastrica and their connection with Addison's anæmia—subacute combined degeneration syndrome and simple (non-Addisonian) achlorhydic anæmia. *Quar. J. Med.*, 1932, N.S.1, 157.

W. E. Tanner. In the operating theatre. *Postgrad. Med. J.*, Jan., 1932.

R. D. Gillespie. Occupation and neurosis. *B.M.J.*, 1932, i, 132.

Change of Address

M. Shaw, 86, Harley Street, W.1. *Langham* 3606.

Death

GREENWOOD.—P. Greenwood, L.D.S. (Eng.), of 76, Thurlow Park Road, S.E.21, on January 13th, 1932.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLVI — *20th February* 1932 — *Number* 1137

PASSIM

THE long-awaited publication by M. Spahlinger of the details of his method of vaccination against tuberculosis has unveiled a mystery of many years' standing. M. Spahlinger, no doubt due in part to the secrecy he has always observed and also on account of the widespread nature of the disease in which he is interested, has achieved much publicity and has been the object of not a little adverse criticism.

For those stricken with tuberculosis for whom the name " Spahlinger " has hitherto conjured up visions of cure, there is little comfort in the report. M. Spahlinger makes it clear that in the preparation of his vaccine the main feature is the observance of the strictest antigenic specificity. Thus vaccines prepared for protection against human tuberculosis must be prepared by organisms cultivated only on human media. This maintenance of strict antigenic specificity has long been recognised by bacteriologists as of importance in the production of certain vaccines, although it had not been considered of value in the production of those for protection against tuberculosis.

It had been hoped that M. Spahlinger, after his long years of research, had prepared an anti-serum which would have heralded a new era in the treatment of tuberculosis. Such, unfortunately, is not the case, and when one considers the very limited number of cases suitable for his treatment it is evident that no great stride has been made in the treatment of this disease. One is left with feelings of regret that the results achieved are in no way comparable to the publicity this form of treatment has derived.

▭

IT is, perhaps, not generally known that, through the generosity of Sir Charters Symonds, the lighting in the Gordon Museum has been completely renewed. For many years study in the Museum has been hampered by the inadequate illumination, and it has been impossible to appreciate fully the many fine specimens. In future, however, there will be no cause for complaint, for the new system lights fully the furthest recesses.

This act on the part of Sir Charters is particularly gratifying, for it signifies the interest and pride taken by old Guy's men in their Medical School. We should like to express to him the grateful thanks of all for this invaluable service.

▭

WE hear rumours current to the effect that the cast of the Residents' Play is considering an invitation to exhibit its talents on the legitimate stage. Personally, we feel that the entertainment provided at many West End theatres is definitely inferior to that which we saw in the Physiological Theatre last week, and we should like heartily to congratulate the President of the Residents, Mr. Sutcliffe, the producers, Messrs. Robson and Reading, and the cast on a very fine performance. We trust that the vast amount of work that they achieved was in some measure rewarded by the well-earned applause which they received. We cannot, however, close our remarks without paying a word of tribute to Mr. Ive, who at the piano contributed largely to the success of the show.

▭

THE Residents' Going-Off Dinner, held on Saturday, February 13th, was again an outstanding success. Mr. G. V. Steward was elected President and Mr. D. W. James, Vice-President, of the Residents for the ensuing term.

WE should like to tender our apologies to Mr. Parfitt for an error which occurred in the review on his book "Operative Dental Surgery." The reviewer mentions that some of the operative measures are quoted from a paper by another writer. This is incorrect, for the paper was, in fact, written by Mr. Parfitt himself, and he regards the particular methods referred to as being of considerable importance. We draw the attention of our readers to this in order that any false impression may be corrected.

THE following appointments have been confirmed by the House Committee :—

House-Physicians—
To Dr. Ryle—Mr. G. A. M. Lintott.
To Dr. Poulton—Mr. D. E. Erskine.

House-Surgeons—
To Mr. Fagge—Mr. J. S. Batchelor.
To Mr. Turner—Mr. G. F. Lashmore.

Out-Patient Officers—
Mr. W. H. Greany.
Mr. E. Sharp.
Mr. K. Biden-Steele.
Mr. T. F. Todd.

Assistant House-Surgeons—
To Mr. Davies-Colley—Mr. G. W. Hall-Smith.
To Mr. Bromley—Mr. C. E. R. Wood.
To Mr. Slesinger—Mr. A. M. Cantor.
To Mr. Ogilvie—Mr. J. Howell.
To Mr. Doherty—Mr. H. A. Constable.

Obstetric Resident—
To Mr. Chapple—Mr. G. V. Steward.

House-Surgeons—
To Mr. Layton—Mr. H. Rosenberg.
To Mr. Thompson and Mr. Trethowan—Mr. R. A. Q. Lay.

Ophthalmic House Surgeon—
Mr. W. H. Bradbeer.

Gonorrhœal Rheumatism

A Clinical Lecture delivered at Guy's Hospital, December, 1931, by V. E. Lloyd, Esq., M.B., B.S.

GENTLEMEN,—The term "gonorrhœal rheumatism" is a clinical term which is applied to a complex inflammation of various skeletal structures which may follow in the course of gonococcal infection of the genito-urinary passages in the male and female. It may also follow, although rarely, on gonococcal infection of the conjunctiva or rectum. A thorough understanding of this complication of gonorrhœa is most important to you for the implication of important joints may be considerably detrimental to the health of your patients, and the more severe effects may result in permanent crippling. Among the structures involved in this condition are commonly joints, ligaments, tendon-sheaths and fasciæ; more rarely bursæ, muscles, bones and peripheral nerves are implicated. Examples of the affection of such structures are familiar to you in gonococcal arthritis of a large joint and in gonococcal infection of the plantar ligaments and fascia.

In general gonorrhœal rheumatism is by no means a very common complication in gonorrhœa; in a large series of cases it will be found to occur in from 2 to 3 per cent. This complication attacks men more frequently than women, and may be met with, although rarely, in children and infants of the female sex. The condition has little ætiological relation to a rheumatic diathesis, for we see rheumatic subjects who suffer from gonorrhœa without becoming affected with gonorrhœal rheumatism.

Acute inflammatory lesions of joints are more commonly noted during the acute stage of gonorrhœa from the third to the sixth week of the disease. The sub-acute joint affections are more frequently associated with a chronic or latent genito-urinary infection. Both types are liable to recur, and may follow a fresh attack or a relapse of gonorrhœa.

The association of rheumatic affections with gonorrhœal urethritis has been known for many years, and the origin and nature of the affection of the joints has given rise to much discussion. Is the inflammatory reaction of the joint in gonorrhœal arthritis due to the adverse effect of gonococci gaining access to the joint or is it caused by the effects of toxins continually absorbed from a focus of infection in the genito-urinary system? The discovery of the gonococcus in the synovial effusion from a gonorrhœal joint, nearly 50 years ago, confirmed the belief that this variety of arthritis is due to the local action of this micro-organism. Since that time the gonococcus has been identified on many occasions in the synovial fluid and in the layers of the synovial membrane. It is, however, a difficult organism to isolate, and

can rarely be recovered from the joint after more than five or six days from the onset of the effusion.

The gonococcus is carried to the synovial membrane of the affected articulation by the blood stream. It becomes localised in the endothelium and sub-endothelial tissues, where it sets up an inflammatory reaction. Round-celled infiltration of the affected tissues, œdema, and serous or sero-fibrinous effusion follow. The natural tendency is to resolution with the formation of adhesions which may lead to ankylosis. In exceptional cases the effusion may become purulent, with or without the addition of secondary infection by streptococci or staphylococci. In these cases, unless the joint be incised and the pressure relieved, gross destruction of the articulation with pathological dislocation may follow.

The frequency with which the various articulations are affected is subject to considerable variation. Certain joints are frequently involved, others rarely; but any articular joint may be affected. The joints commonly involved are given in the table below in order of frequency as noted by Finger; the proportion and order is closely parallel to those in the cases noted in this hospital.

Knee	136	Tempero-mandibular	14
Ankle	59	Metatarsus	7
Wrist	43	Sacro-iliac	4
Digits	35	Sterno-clavicular	4
Elbow	25	Costo-chondral	2
Shoulder	24	Intervertebral	2
Hip	18		

It will be noted that infection of the tempero-mandibular joint is low down in the order of frequency. There appears to be an impression among students that infection of this joint is common in gonorrhœa. This is incorrect. It is, however, very important for you to remember that this joint may suffer in gonorrhœa, for it is very rarely affected in any other variety of rheumatism except in rheumatoid arthritis. In a young adult with multiple arthritis the implication of this joint is strong clinical support of a gonococcal origin.

CLASSIFICATION

Many different classifications of the varieties of gonorrhœal arthritis have been suggested. The following brief classification is recommended on account of simplicity and practical clinical value.

1. *Acute.*—(*a*) Acute arthralgia.
   (*b*) Acute arthritis.
2. *Sub-acute* and *Chronic.*—(*a*) Chronic hydrops.
   (*b*) Sub-acute polyarthritis.

Acute arthralgia.—In general, this condition comprises transient pains flitting rapidly from joint to joint. There are few or no local signs. Slight hyperæmia of short duration may be noted, also slight malaise and brief fever. These symptoms usually disappear completely, but occasionally are the prodromal warning of acute joint disease which soon follows.

Acute arthritis.—This is the most frequent variety of gonorrhœal joint disease. It is characterised by the abrupt onset of intense pain and of rapid swelling in a large articulation. Commonly one or two joints are affected, rarely more than four or five. Local redness and heat are not very marked. Pain, especially on movement, is intense. The swelling is usually well-marked and comprised by moderate effusion into the synovial cavity of the joint and considerable effusion among the per-articular structures in the immediate vicinity.

As a rule, intermittent fever of moderate degree (101°-103°) is found, which is not relieved by the administration of salicylates. Sweating is not a prominent feature and is far less striking than that associated with acute rheumatism; also in contrast to the latter disease cardiac complications are very rare. The disproportion between the mildness of the general symptoms and the severity of those associated with the joint is strikingly in contrast to the clinical picture in acute rheumatism. Another feature in which gonorrhœal rheumatism differs from acute rheumatism is that the joint affection lasts for several weeks in the former and that other joints become involved long before the inflammatory reaction in the first joint subsides.

When the affected joint is placed at rest and protected, the fever and pain subside during the course of a few weeks. The swelling and stiffness may persist for a considerable time. Occasionally in acute arthritis the condition progresses and the synovial effusion becomes purulent. This is followed by exacerbation of the symptoms and local signs. The joint becomes hot and very tender. It is held rigidly in a semi-fixed position by muscle spasm. Unless relieved by surgical measures the intro-articular effusion increases, the surrounding structures become œdematous, the ligaments are stretched, the synovial membrane destroyed, and the cartilage and underlying bone become infected. Eventually the ligaments give way and destruction of the joint ensues, frequently followed by pathological dislocation. The condition is a grave one; toxæmia is marked and pyæmia may occur at any moment.

On bacteriological investigation of the purulent effusion streptococci or staphylococci are frequently found either in pure culture or in association with gonococci.

Chronic hydrops.—This condition, which is very uncommon, is a chronic synovitis of a large joint, almost invariably the knee joint. The onset is

frequently insidious, there are no acute inflammatory signs, and pain is almost entirely absent.

The amount of effusion is usually gross, resulting in a distended articular capsule, stretched ligaments and undue mobility. The condition is an extremely chronic one and subject to periods of slight improvement followed by relapse over a period of years. Finally it may progress into a condition of osteo-arthritis. I have seen one case of this type in which chronic hydrops of a knee joint had been present for 20 years.

Sub-acute polyarthritis.—This variety of gonococcal arthritis is almost as frequent as the acute variety already described, but differs from it in several characteristics.

The number of joints involved is greater; there is a special predilection for the smaller joints, such as those of the carpus, tarsus, digits and the temporo-mandibular joint. Also the degree of inflammation of the joint structures is less intense and its course more protracted. The onset is frequently insidious, although occasionally acute arthritis may merge into the more chronic variety under discussion.

The greater the number of joints involved, usually in succession rather than together, and the inveterate character of the inflammatory reaction render this condition a much longer affection than the acute variety. Whereas progress in acute arthritis is measured in weeks, the sub-acute variety may last for months.

The main characteristics of the swelling of the joints are not dissimilar to those of infective arthritis of focal origin. Some œdema of the skin may be present in the early stages, but redness, heat and tenderness of the skin over the joint are slight. The degree of swelling is not marked, and pain, apart from movement of the articular surfaces, is not severe.

The effusion in the synovial cavity and among the structures surrounding the joint is moderate in amount and rather more evident in the periarticular structures than in the joint itself. What effusion is present is of the serofibrinous type, and for this reason there is a marked tendency to form adhesions both inside and outside the joint cavity, which may result in various degrees of fibrous ankylosis.

The extent of wasting in the muscles acting on the joint is usually moderate, but in exceptional instances, particularly where there are signs of toxæmia, wasting is rapid and marked.

The extent of fever associated with sub-acute gonococcal polyarthritis is slight and of irregular type. I have already drawn your attention to the involvement of the smaller joints. It is in this variety of gonococcal arthritis that we meet with infection of the interphalangeal joints of the fingers and more rarely of the toes. The carpal, tarsal, metacarpo-phalangeal and metarso-phalangeal joints may also suffer. Infection of the interphalangeal joint of the fingers are the most frequent in this group, and may result in a very chronic painful enlargement of the joint, in which the movements are very restricted; this condition is sometimes known as "radish finger."

Infection of the metacarpo-phalangeal joint of the thumb is not common, but it is invariably particularly chronic in its course and the mobility of the thumb is permanently and severely restricted. The temporo-mandibular and sterno-clavicular articulations may also be affected; I have previously referred to the importance of the former.

One of the most progressive and disabling joint affections in this group is that of spondylitis deformans, in which there exists a chronic progressive infective arthritis of the inter-vertebral joints, which usually results in a marked degree of ankylosis. In some cases, particularly in young adults of the male sex, the infection is gonococcal in nature.

Sub-acute gonococcal polyarthritis is almost invariably associated with a chronic or latent gonococcal infection in the genito-urinary passages. The signs and symptoms of such infection are not at all prominent, and no evidence of its presence may be found on superficial examination. The patient may be quite unaware of the persistence of infection in the genito-urinary system. In those cases where there is found an obvious acute gonorrhœal urethritis, this is more commonly due to an exacerbation of a pre-existing lesion, *i e.*, a relapse, than to a recently acquired gonorrhœa.

The course of sub-acute gonococcal polyarthritis in general is slowly progressive towards resolution by ankylosis; as Osler has aptly remarked in discussing this condition, variability and obstinacy are the two most distinguishing features.

TENDONS, BURSÆ AND FASCIÆ

In addition to the infection of joints, certain other skeletal structures are frequently involved in gonorrhœal rheumatism, either in association with joint lesions or less commonly as isolated inflammatory conditions. Bursæ are occasionally attacked; the inflammatory process is of chronic type and the course protracted.

The bursa in association with the tendo-Achillis and that beneath the os calcis are the most frequently involved. The latter frequently forms beneath a sub-calcanean spur which results from a localised periostitis of the inner or outer tuberosity on the inferior surface of the os calcis.

Gonococcal teno-synovitis occurs not uncommonly in the tendon sheaths of the extensors of the hand and foot, most frequently in association with some degree of infection in the joint in the immediate vicinity, but may occur as an isolated phenomenon. Infection of the tendo-Achillis is also occasionally seen. The lesions are characterised by sudden moderate swelling and redness along the course of a tendon sheath. Pain is marked and voluntary movement very restricted. Gonococci have been isolated from the effusion.

Transient affection of fascial structures is probably frequent in the acuter varieties of gonorrhœal rheumatism, particularly in those cases where flitting pains are prominent.

Gonorrhœal flat-foot may result from infection of the plantar ligaments and fascia; chronic infection of these structures produces a painful stiff foot with very depressed arches. Affection of these various structures is almost invariably of a chronic type; the effusion is of sero-fibrinous type and persistent; the tendency to fibrous tissue formation is marked. Neglect of treatment may lead to endless disability with adhesions and contractures.

DIAGNOSIS

In many instances of gonococcal arthritis its association with infection of the genito-urinary tract is obvious from the clear history, prominent physical signs and symptoms, and bacteriological confirmation is readly obtained. In other cases the physical signs and symptoms of genito-urinary infection may be very slight and the history of gonococcal infection may be moderately recent, remote or absent.

In the investigation of cases of chronic joint affection a history of gonorrhœa is often concealed, and a most complete clinical and bacteriological examination of the genito-urinary system, as well as other regions, is necessary before any decision can be made as to the role taken by the gonococcus.

Let us consider for the moment a swelling of the ankle joint of the chronic infective type in an adult male. In the first place I place great value on information gleaned from a thorough elucidation of the previous and present history of our patient. It is obvious that a clear history of urethritis will be of importance, but, as you well know, past and even present attacks of gonorrhœa are frequently denied. If we can obtain the confidence of our patient we will have little trouble in this respect. An explanation that infection of joints is commonly due to a focus of infection somewhere in the body in the teeth, the tonsils or in the alimentary canal, is readily accepted by the patient, and a few inquiries concerning these regions will put him at ease. A further explanation that such joints may be due to genito-urinary sepsis, particularly gonorrhœa, is readily understood. The attitude that no great progress can be made until the focus of infection can be found and that his co-operation is essential will generally result in a truthful patient.

What are we to inquire into in those cases which are not straightforward? Certain signs and symptoms associated with the persistence of a low-grade infection of the genito-urinary system are of importance and demand our special consideration.

Morning gleet.—This comprises the presence of a bead of milky or grey secretion at the urinary meatus which is noticed by the male patient on waking up in the morning, but is rarely observed during the day; it is indicative of a mild chronic urethritis.

Pain.—Slight but persistent aching in the sacral region, in the groins and in the perineum is not uncommon in cases of chronic infection of the prostate gland and seminal vesicles. Brief stabbing pains referred to the perineum are also occasionally complained of; they may occur at the end of micturition or entirely independently.

Prostatorrhœa.—The appearance of a few drops of thin opalescent fluid at the urinary meatus during or immediately after defæcation is associated with the production and accumulation of excessive secretion of the prostate gland and more rarely of the seminal vesicles. This condition is sometimes, though by no means always, due to chronic gonococcal infection of these organs.

Recurrence of urethritis.—The occurrence of frequent attacks of mild and transient urethritis, particularly during a period of abstinence from sexual intercourse, is usually due to exacerbations of a low-grade infection in the urethra or in the sexual glands connected with the urethra—the prostate gland, seminal vesicles and Cowper's glands.

Stricture.—In cases of stricture of long duration there will be a history of continued difficulty of varying degree in micturition and attacks of retention of urine may have taken place. In cases of slight scarring of the urethra without obstruction the calibre of the urinary stream is not affected, but efficient emptying of the urethra at the end of micturition is interfered with by the presence of fibrous tissue in the wall of the urethra which impedes the efficient contraction of the urethral musculature. The result is that the urinary stream does not end promptly and slight dribbling takes place. The association of urethral stricture and gonococcal arthritis is not a frequent one, probably because drainage of an inflammatory process in the anterior urethra is good and the infected area is less likely to act as a closed focus.

We must also inquire into former signs and symptoms which point to conditions that may have been due to previous metastatic gonococcal infection. Former attacks of rheumatism must be subjected to as detailed a cross-examination as possible. Were any joints affected in a similar manner to the present arthritis? In particular, were the small joints of the hands or feet or the temporo-mandibular joints affected? Has there been any complaint of pain in the tendo-Achillis or under the heel on walking? Was the previous attack of rheumatism associated with urethritis?

A history of iritis in association with previous attacks of arthritis will lead us to consider the possibility of a gonococcal origin. When the iritis has been bilateral first in one eye and later in the other and the attacks have recurred we will be still more suspicious. When the history covers a long period during which repeated attacks of arthritis, iritis and urethritis have alternated or coincided, then we can be almost certain of incriminating the gonococcus. A truly classical history will also include a description of the difficulties associated with a stricture of long duration, but we scarcely need this addition for our purpose.

PHYSICAL EXAMINATION

A most thorough physical examination of the genito-urinary organs is essential. A superficial examination for the presence of urethral discharge, a macroscopic examination of the urine and palpation of the penis, prostate gland, seminal vesicles and scrotal contents may reveal ample initial evidence of gonorrhœa in the acute or subacute stages, but in the chronic stage may reveal nothing. We must not be content with the negative results of this immediate examination.

Aleoəp ɪmc examination should be as follows. A critical inspection of the penis should be made, looking particularly for swelling, eversion and redness of the lips of the urinary meatus as well as for any urethral discharge. The under surface of the penis should be inspected and palpated for signs of a sub-urethral abscess or sinus. Any secretion that can be obtained from the urethra should be submitted for microscopical examination, whether it appears to be a purulent discharge or not.

In cases of slight gleet, little or no secretion will be available during the day. More adequate specimens can be prepared, after instruction, by the patient on waking up in the morning. This is a simple but particularly valuable method of obtaining an adequate specimen on a glass slide in cases of gleet, and few patients are too unintelligent to be instructed with success. In the same manner patients can also provide specimens of the " discharge " in the condition of defæcation prostatorrhœa already referred to.

On both sides the testis, epididymis and vas deferens should be palpated for abnormalities associated with previous inflammatory disease. Chronic enlargement, irregularities or isolated nodules in these organs or atrophy of the testis may be noted long after an attack of gonorrhœa is forgotten by the patient. Rectal examination should not be limited to palpation of the rectal surface of the prostate gland for enlargement, tender areas or nodules, but must include palpation of each seminal vesicle and ampulla of the vas. Also Cowper's glands, which, when enlarged, can be detected immediately below the apex of the prostate, must not be forgotten. These two glands are best felt between the index finger in the rectum and the thumb in the perineum.

The complete examination includes microscopical examination for pus cells and bacteria of the secretion expressed from these organs by digital massage.

Urine examination in general is most informative when carried out on a specimen that has been held for three or four hours. In chronic gonorrhœa it is useless to examine the urine when micturition has taken place within the previous hour or so. Examine the urine macroscopically in particular for the presence of pus and urethral threads. The centrifugal deposit should be stained and examined for cells, pus cells and epithetial cells, and for bacteria.

When prostatic massage has failed to produce any visible secretion at the meatus, urine should be passed and examined as described above.

In the majority of cases of gonococcal arthritis in the male, evidence of infection of the prostate gland, the seminal vesicles or ampulla of the vas will be found. A general enlargement of the prostate gland is not very common; it is more usual to find a few tender nodules which can be palpated in the substance of this gland. In some cases where chronic infection is present nothing abnormal can be felt, but microscopical examination of the prostatic secretion will reveal the presence of many pus cells. Microscopical investigation of the secretion of the prostate, seminal vesicles and ampullæ must always be undertaken. The prostate gland may require massage on several occasions before an adequate specimen is obtained. The production of an adequate specimen from the vesicles and ampullæ by digital massage is by no means easy. In some patients, particularly in the fat type, it may be impossible to reach far enough. In chronic prostatitis there is usually some drainage through the prostatic ducts, although it may be restricted, but in chronic vesiculitis, particularly

in those cases in which the vesicles present a hard, irregular, indurated mass, the ejaculatory ducts are blocked and no secretion is yielded after massage until this has been carried out regularly for several weeks.

In difficult cases a condom specimen of semen may be obtained and submitted to full bacteriological examination. It is as well to remember in cases of unilateral vesiculitis that the semen produced may have come from the healthy vesicle only.

Urethroscopy of the anterior urethra is a simple procedure and should be performed in every obscure male case. This will reveal to the eye details of conditions that are merely inferred by physical and urinary examinations, also lesions that may be entirely unsuspected. The early stage of a stricture which may give rise to no symptoms, infected lacunæ and follicles are readily detected.

In those cases where clinical examination reveals slight but inconclusive evidence of chronic inflammation in the prostatic urethra, the prostate gland, seminal vesicles or ampullæ, especially when no adequate secretions for examination purposes can be obtained, considerable information may result from scrutiny of the prostatic urethra with an irrigating posterior urethroscope. With this type of instrument, which provides a highly magnified and clear view of the structures in the prostatic urethra, the urethral mucous membrane, the openings of the numerous prostatic ducts, the orifices of the two common ejaculatory ducts and the verumontanum can all be studied at leisure.

In chronic infection of the prostate gland and seminal vesicles the verumontanum is frequently markedly swollen. The openings of the utricle and of the two ejaculatory ducts may be œdematous and everted, and irregular openings in the lateral aspects of the floor of the prostatic urethra leading to recent or old abscess cavities in the prostate gland may be visible. These openings may be due to dilatation of prostatic ducts or due to rupture of an abscess in the prostate through the floor of the urethra.

This completes our examination of the obscure case in the male subject with the exception of the uncommon infections of the anal canal or rectum with gonorrhœa.

In female patients gross disease in the pelvic organs will be revealed by abdominal and bimanual examination. To detect signs of inflammatory disease in the lower genito-urinary tracts careful clinical inspection with the patient in the lithotomy position is advisable. For the detection of the signs of chronic disease in these tracts and for the collection of adequate bacteriological specimens it is essential to use this position. The region of the urinary meatus must undergo a very close scrutiny. Look for redness, swelling and eversion of the margin of the meatus; if no pus is seen some may be rendered visible by pressure along the urethra with a finger in the vagina. In the area immediately lateral and inferior to the urethral orifice look for the small orifices of Skene's tubules; these ducts are notorious lurking-places for chronic gonococcal infection. Bartholin's gland in the lower part of the labia majora and the opening of its duct on the inner aspect of the labia minora must also be closely examined. These are occasionally a focus of chronic infection. Any secretion of suspicious appearance from the ducts mentioned above and from the urethra should receive bacteriological investigation.

In women the cervix uteri is the most frequent focus of chronic gonococcal infection. With a Cusco's speculum and the use of the lithotomy position of the patient pathological alterations are readily noted. In many cases of chronic infection the visible signs are of trivial degree. The secretions from the cervical canal must always be submitted to full bacteriological examination. The most favourable time for a successful search for gonococci is 12-48 hours after the cessation of menstruation. In women and female children especially examination of the anal canal is of great importance, as gonorrhœal proctitis is not uncommon and when of chronic type may give rise to no symptoms.

There remain some general tests at our disposal which are applicable to both sexes. The gonococcal complement fixation reaction in the blood serum may provide additional evidence of infection. When using this test it must be remembered that negative results are of little value, also that positive results are almost invariable after a course of treatment with gonococcal vaccines. The injection of a large dose of a gonococcal vaccine may be followed by an exacerbation of the joint condition or of the chronic or latent infective process in the genito-urinary system. The use of this procedure as a provocative test is advisable in selected cases, but is not permissible when any degree of acute arthritis is present. The condition of the joint must be closely observed for the next 48 hours for any increase in inflammatory signs. Gonococci may be found for the first time in the genito-urinary system one to three days after a provocative vaccine.

TREATMENT

In gonococcal arthritis and teno-synovitis the local symptoms may be relieved by the application

of anti-phlogistine or by painting the joint with tinct. iodi in the less acute cases. Radiant heat and diathermy are also helpful, and passive congestion by Bier's bandage has been used with success.

Acute arthritis in a large articulation such as the knee or ankle will need rest and protection. The joint should be fixed by sandbags in the position of least distention. Fixation with splints should be avoided on account of the tendency to form adhesions with subsequent ankylosis. If the pain and general symptoms cannot be relieved by local applications, rest and protection, then the use of splints is necessary. But in order to run as little risk as possible of future ankylosis, the joint should be freed for an hour or so each day after the first day and slight active movements encouraged. This is also of value in preventing the rapid wasting of muscles that sometimes ensues. A method I have used occasionally with success during the acute stage is to employ fixation in splints at night only; during the day the joint is fixed with sandbags, protected with a cradle and movements encouraged.

For those rare acute joints in which the effusion becomes purulent immediate surgical measures—incision and drainage—are required.

Treatment of the genito-urinary focus of infection should be instituted without delay in sub-acute and chronic arthritis and as soon as permissible in acute arthritis. Details of such local treatment cannot be discussed to-day in the time at our disposal, but I would impress upon you the great importance to the recovery of the joints of thorough and regular attention to all genito-urinary foci that may be present.

It is of little use to attempt to allay an inflammatory process in a joint which is due to the constant absorption of infective material from a distant focus without attempting to eradicate that focus. It is also important to remember that too energetic a therapeutic attack on the focus may produce an exacerbation in the condition of the affected joints, or possibly result in the implication of additional joints.

There are, however, general measures that are of value in the treatment of gonorrhœal rheumatism that we can discuss now. Various attempts have been made to reach the infective process in the joints and in the genito-urinary focus by the intravenous injection of antiseptic solutions. For this purpose such compounds as neutral acriflavine and mercurochrome-220 have been utilised with varying success. I have seen no definite improvement follow the introduction of mercurochrome. Acriflavine is, I think, of some value, and I employ this drug frequently, but since it is absorbed efficiently after oral administration, injection into the circulation is unnecessary.

Potassium iodide and iodolysis are used not for any action upon gonococci, for no effect is produced, but for their aid in the absorption of adhesions and possibly in the prevention of the formation of adhesions.

Vaccine therapy is of undoubted value in certain stages of gonococcal arthritis. Autogenous vaccines prepared from gonococci isolated from the genito-urinary focus are slightly more efficacious than stock vaccines, but cannot always be prepared when needed. When stock vaccines are used, they should be of polyvalent variety. It is inadvisable to institute treatment with vaccines in the presence of acute arthritis, but as soon as the acute inflammatory reaction subsides and in all sub-acute joints this method of treatment may be employed with success. Very small doses—one-half to one million—are advisable at first. A gradual increase in dose every four or five days is advised; the increase in dosage depending on the extent of reaction produced.

The Residents' Play

RESIDENTS' Plays are of two sorts—those that are good and those that are very good. This year's play was an exception; it was a masterpiece. As usual, one was left wondering why on earth any of the cast should contemplate carrying on with medicine. Who would not sooner bring the house down nightly upon his head than dispense coloured water to neurotics? Some say therein lies the nobleness of our profession; others prefer that coloured water will outlive the glamour of even our greatest actors.

The most striking thing about this year's play was the quality of the acting. The singing was the best I had heard for many years, and the speaking voices were such that, though one sat in the highest gallery, not a word escaped him, unless it was drowned in applause.

Mr. Ive's music was as good as ever. For several years now Mr. Ive has written the music for the Residents' Play, and yet each year it succeeds in being quite different—not only in melody but in character. I never could remember tunes, but

the morning after the dress rehearsal I woke up singing the " Policemen's Chorus."

As for the play itself, which was written by Messrs. Reading and Robson, I doubt if Shakespeare ever produced a better. The humour was the most delicate possible, and there were as many murders as could decently be squeezed into the time. And yet as one found oneself quoting .—

" Oh, bloody sight ; oh, ghastly spectacle.
Oh, woeful day . . ."—

one suddenly realised it was all quite harmless and physiological—" Pogo, isn't he sweet ? "

The play opens in the park with a plethora of beauty ; four luscious damsels (Messrs. Burtenshaw, Clarke, Lyne and Southam) fairly hanging on to the coat-tails of the handsome Victor Valerian. The last (Mr. Sutcliffe) was a typical house-physician, good-looking and adored by nurses. But his heart was for none of these ; he was merely filling in time waiting for his true love.

OPENING SONG

There follows a pointed conversation mainly about anæsthetics, petrol and sparrows, when the heroine, Virginia (Mr. Williams) appears just a bit too soon. It takes Victor a little time to convince Virginia that the time had only been quite superficially filled in before they get down, in the following duet, to true business.

SONG (VICTOR AND VIRGINIA)

Unfortunately, Sister Banner (Mr. Schofield), who is making her round, catches them as they are linked in each other's embrace, and, though she refuses to listen to any explanations, she expresses the belief that when the Superintendent hears about it he will probably understand. The lovers depart discomforted ; the lights grow dim, to go up a moment later on the murdered Sister Banner.

The second scene is laid in the College dining-room, where Mr. Siggers, as the waitress, is tidying up.

WAITRESS'S SONG

Meanwhile Victor and two other house officers (Messrs. Schofield and Peckham) have taken their seats for breakfast when they read in the paper of the murder in the park. Victor is obviously upset at the news, and the others at first in joke remark on it. As a result he becomes yet more serious, and their suspicions are really aroused. Suddenly Bayhew, the porter, enters all out of breath to announce that there has been a second murder. " They do say it was the Dean, Sir . . . Such a lovely man, Sir . . . but 'e's a 'orrid sight now, Sir." Mr. Chamberlain as Bayhew is extremely good ; the voice, the gait, the mannerisms and attitudes are all perfect.

Bayhew and Victor depart, leaving the others in a state of tension. A crash without and the waitress minces in ingenuously to announce, not a third murder, but " Miss Bobbins says there *ain't* no fish."

The second act goes up on the Superintendent seated at his office desk with his faithful secretary, Miss Druggett, in attendance. Mr. Lomax is very good as the Superintendent, but makes no attempt to disguise his natural voice ; the singing of his song (see below) is very striking. The Superintendent is naturally upset at the death of Sister Banner and the Dean, but you feel he is annoyed rather than sorry. Clearly the fact that nine cars were left in the front court over-night is a much more serious matter.

Dr. Piffle, the medico-legal expert, now enters, the living image of the man whom, one almost wanted to believe, Mr. James had prevailed upon to turn up in person. The impersonation by Mr. James was unusual in that, unlike most impersonations, it was not *more* like the reality than the reality itself ; I mean it did not go beyond, exaggerate grossly. Almost upon his heels Professor Pembray appears in a typically physiological guise, very naturally annoyed at having been warned off the main entrance by an ignorant porter. This is Mr. Rogerson, who succeeds in very closely approaching an unapproachable ideal. These two characters, Piffle and Pembray, are cleverly contrasted throughout the play ; the calmness and collectedness of the one, the enthusiasm of the other. They go off to pursue the criminal, each along his own lines.

Mr. Steward as Miss Druggett now announces the arrival of a " nark," " split " or " busy "—the full sense of the ridiculous in which only those who have passed beyond the doors of the Superintendent's office could appreciate. Mr. Schofield as the " nark," " split " or " busy " makes a very realistic middle-Western " 'tec," and goes off on his job so soon as he has got all the information he can out of the Superintendent.

THE SUPERINTENDENT'S SONG

I'm the Superintendent of this hospital and so
There isn't very much goes on of which I do not know.
When house-physician drops a brick and sends the case away,
To come up *in extremis* to the Surgery next day ;
Or if he is not quite polite to doctors on the 'phone ;
Or fails to spot the fracture, if there is a fractured bone ;
Or comes back late the worse for drink and College wards he creeps ;
He may not think I know it—but the Super. never sleeps.

Having studied human nature, I am up to every trick ;
You need not think I'm taken in when someone goes off sick.

I don't accept as gospel-truth each little word I'm told,
Nor yet believe that everything that glitters must be gold.
I'm not so very simple, you don't have to tell me twice;
The Governors and House Committee value my advice;
But if there's any work to do—a little or a lot,
You can't deceive the Super., for he's always on the spot.

Although the Superintendent, I can be both grim and gay
And quite a decent fellow if I only have my way.
The Staff can argue all they like, they see it's quite absurd;
And even Mr. Layton knows I have the final word.
Quite often people try their very best to catch me out
By asking awkward questions when the issue is in doubt.
They may think they're very clever, for it does 'em good to try,
But I've got my eye upon 'em and I'll catch 'em bye and bye.

The matron, complete with dog, is the next visitor. Taken by Mr. Bloom, she was magnificent. One instinctively felt that somewhere beneath that nervous, slightly faltering, exterior there beat a heart of gold. How anxious she was—apart from the uncertainty caused by the dog's movements—that her nurses in this crisis should come up to scratch. And so she brings them in, all carefully drilled, to report, almost by numbers, their evidence of the previous evening; Victor and Virginia sitting alone just where, and only a few minutes before, the beloved sister had met her end.

When they have gone the Superintendent appears distressed and worried. He makes sure that he is alone, that no one can overhear him, and picks up the telephone. There is an awkward pause while the Exchange fumbles . . . then, "Listen—most important—2.30 this afternoon—Lone Star, half-a-crown each way!"

The second scene of the act is laid in the front surgery, and opens with a song by three nurses.

NURSES' SONG

And this leads naturally to the discussion of local scandal in the middle of which the heroine, Virginia, enters. "Murderess," "Crippen," the others let fly, as haughtily they sweep out, and Virginia, after murmuring something about "Cats," bursts into tears. Victor arrives and

makes matters much worse by saying that, anyhow, he will never give her away. The usual quarrel starts, upon which, with his broom for an excuse, Bayhew characteristically comes in.

There follow a few excellent moments during which Bayhew diagnoses front surgery cases; the first, an old lady "with a stummick, and wind like a blooming hurricane," very realistically depicted by Mr. Steward; and the second a very shy young man who is immediately diagnosed and directed "Straight across the hall, Sir"—a theme more elaborately developed in the following :—

BAYHEW'S SONG

Introduction—

I've worked here now as man and boy
For nigh on forty year,
And things that I have often seen
Are curious and queer.
I stand here till the clock strikes eight
All through the dreary day,
Just like Saint Peter at the Gate,
And to each patient say :—

"You think it is your stomach, dad;
It may be you are right,
Perhaps a little apple that
You ate the other night.
Green apples are the devil,
They made old Adam fall;
So, it's straight across the hall, dad,
Straight across the hall!"

We gets 'em from the suburbs,
They come by train and rail
From every direction,
But most from Maida Vale.
"I want to see the Doctor!"
Rings out the clarion call;
But, it's straight across the hall, dad,
Straight across the hall!

I sees 'em in the Surgery;
I really could have swore
It's mainly C_2H_6O,
Just that and nothing more.
It's Barclay's number one, Sir,
That makes a fellow fall;
So, it's just across the hall, dad,
Straight across the hall!

You think that you have strained yerself?
In me you can confide.
Your back is very tender,
And you've got a cold inside?
You ought to be more careful,
And not take risks at all;
So, it's straight across the hall, dad,
Straight across the hall!

For every ailment you may catch
We have specific drugs,
For we have doctors who can kill
The most elusive bugs;
But if the swab is negative,
You ain't got diph. at all;
I 'umbly begs your pardon,
I meant no harm at all!

Victor, obviously with a headache, returns for aspirin and proceeds to sing one of the best songs in the play. But there was one verse that should have come last and should have been repeated; it was the best verse and referred to the autopsy room, where truth not only *will* out, but often does so ostentatiously.

VICTOR'S SONG

When a patient has a tumour in his head
Or a neoplasm somewhere in his spine,
The man to see is Bromley, it is said,
When Symonds has suggested a trephine.
When they've shaved his head as bald as any coot's,
And made the usual fatuous remarks,
You will no doubt hear him say,
As his life-blood ebbs away,
"I wish I'd gone to Thomas's or Bart.'s."

If you're suffering with any ache or pain
Which your doctor doesn't seem to diagnose,
Don't wait at home until he calls again,
But make a point of seeing one who knows.
Dr. Poulton is the man you should consult,
He's exactly like a bloodhound on the scent;
You will no doubt hear him say,
In his kindly sort of way,
"I think, perhaps, we'll put him in the tent!"

If you've got a funny lump in your inside,
And someone wants to open you and see,
Just think before you finally decide,
Who's to do the dirty job, and what's his fee?
Mr. Steward's rather handy with a knife,
And may even get you out of it alive;
You will no doubt hear him say,
"That reminds me in a way,
Of a case I had in 1895!"

Everyone of us one day will have to die
And leave this boring, sinful, wordly life,
Upon a marble slab in state to lie
While someone cuts us open with a knife.
Mister Donaldson attends to your P.M.,
And will insist on laying down the law;
But you won't hear him say,
As the abscess drains away,
"What a pity no one thought of this before!"

When for months they've seen each other every day,
The members of the Staff dispatch their wives,
To sit and sew and pass the time of day
Discussing other people's private lives.
Then why not join the ladies' league at Guy's?
And help to do the mending year by year?
And do your best to say,
In a catty sort of way,
"I think it's quite disgusting, don't you, dear?"

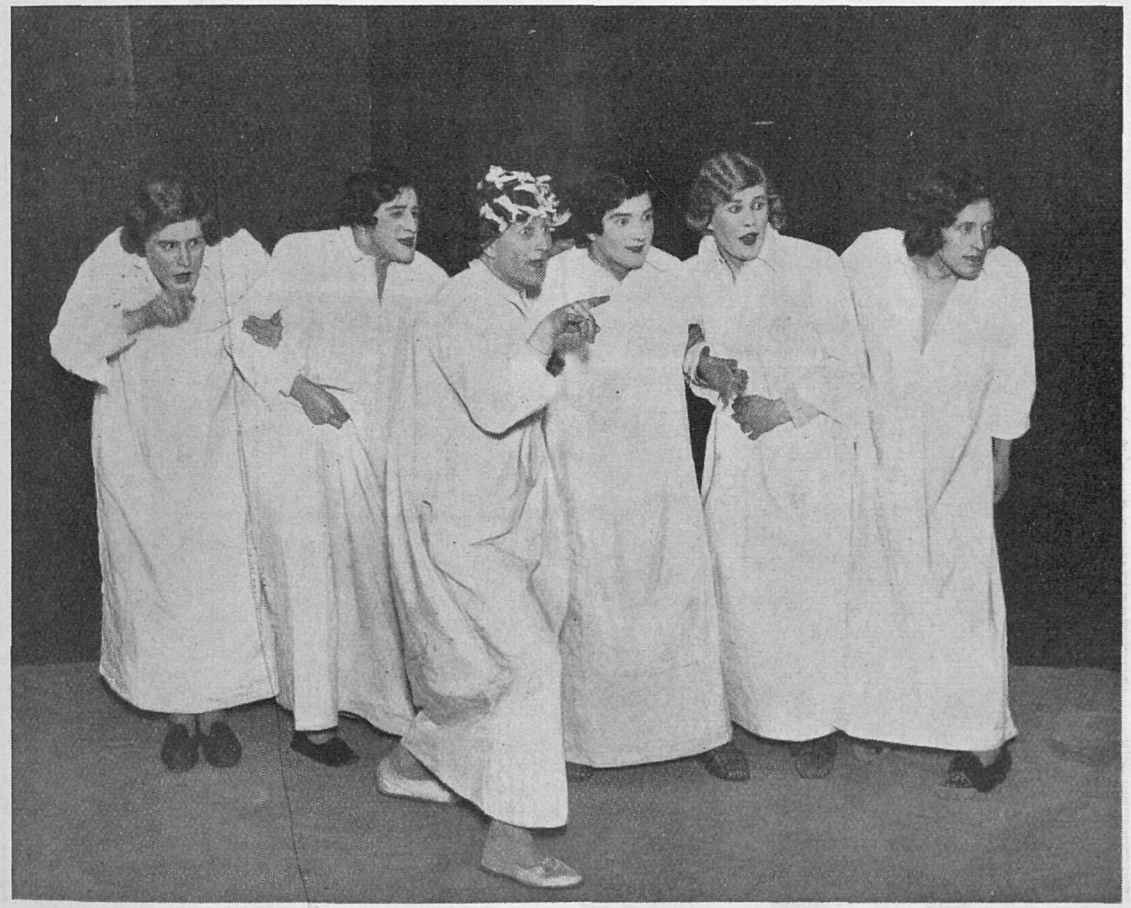
There are complaints of which I may not speak,
For fear I should offend æsthetic taste,
And yet I must inform you whom to seek,
For such complaints you all may have to face.
Your choice of man is rather limited,
For Mr. Thompson reigneth here supreme;
You will often hear him shout,
As he pulls the coudé out,
"Good fellow, that is quite a decent stream!"

For a moment at this point our attention is distracted by the transit across the stage of Dr. Thompkins and his house-surgeon. Mr. Peckham was very clever with his " Good fellow . . . good fellow . . . you wuddy fool," and Mr. Bloom, with equal cleverness, looked it.

Pembray and Piffle reappear, and the former, after jeering at Piffle for being so long in finding the criminal, goes on to make various illuminating remarks on the physiology and morality of rabbits. He offers in a rather sinister way to show him *how* he kills rabbits, kills anything, in fact, that is physiologically useless. One is left wondering, and so apparently is Piffle, whether Sister Banner and the Dean may not have been considered physiologically useless—a much more fruitful theory than Piffle's original view that they were the victims of a suicide pact.

Left to himself, Piffle, spurred on, begins " looking for clues " on his hands and knees with a large magnifying glass. The only one he succeeds in picking up, however, is the lady with the wind who has returned and is sitting on the seat. She takes umbrage, calls the policeman, and very nearly gets the Home Office expert arrested for assault. At this juncture the " nark," " split " or " busy " comes running in calling for Piffle, but he is mortally wounded and dies before he can get out the name of his murderer.

The last scene of this act is laid at midnight in the Nurses' Home. It successfully polishes off another sister, and contains a song in the form of a prayer to " Saint Ashdown "—a lady, I understand, who wrote a bible for nurses. All the characters in this scene, excluding Bayhew and Dr. Piffle, are in night-dresses. Home Sister (Mr. Steward) rushes in to discover the cause of an ear-splitting scream. It is Virginia in the throes of a cerebral anæmia brought on by the clutches of what, owing to their tightness, she had diagnosed as a man. The other nurses enter and discuss a plan of campaign whereby they will be able to warn the night nurses returning via the subway to the Home. The Sister volunteers to go herself



to warn them ; and it is when she has gone that Virginia, who has a head on her shoulders, sets off her timid companions praying to Saint Ashdown.

SONG (PRAYER)

A horrid screech follows, and Bayhew and Piffle appear carrying Sister, " dead as mutton," on a stretcher.

The last act opens in Great Maze Pond with the Policemen's Chorus. The song was excellent, but its chief importance was in giving Mr. Siggers a chance of bringing, all on his own, the house down completely. The way in which he beautifully did just *not* come in on the right beat was the great artistic achievement of the evening.

POLICEMEN'S SONG

Here Dr. Piffle once more gets into trouble with the police, his " movements " having appeared rather suspicious to one of them ; but the mistake is soon rectified and he bears them no grudge.

DR. PIFFLE'S SONG

Sometimes a man will neatly kill
His sweetheart, wife, or even will
Perform the oft-repeated trick
With massive dose of arsenic.
And next to Bernard Spilsbury,
Of course, the man of choice is me !
And so my duty I don't shirk,
But see if there's been dirty work !

Chorus—

What about your leak-point ?
How's your blood urea ?
Is your spinal fluid
Purulent or clear ?
How about a test meal
For epigastric pain ?
All investigations
Signed with Piffle's name !

Forensic medicine is my flair,
But please don't think that I despair
Of finding out, before I rot,
Who put poor Sister on the Spot ;
Who took the Dean and bumped him off,
And sent him on his way aloft.
Dr., am I wrong ?—perhaps below !
It really doesn't matter though.

Chorus—
What about a sugar curve ?
How's your diastase ?
A careful search for unsplit fats
Very often pays.
Is there any occult blood ?
Muscle striped or plain ?
Every doctor and the Press
Worship Piffle's name !

We have hinted farther back that Piffle's view on the crime had undergone a change, and the appearance now of Victor gives him an opportunity for apologising to our hero for having regarded him with suspicion. He suggests, further, that Victor should assist him in a new plan to catch the murderer. Victor is obviously immensely relieved and suggests a " quick one " at the " Ship." Piffle hesitates a moment, and one wonders whether Victor has dropped a brick ; but no, it is only that the great ones prefer to take their liquor at the " King's Head ! "

The last scene of the play is short and to the point. Dr. Piffle enters and actually arranges Victor in Virginia's embrace—forensically, perhaps, but no matter. It was hoped the criminal would return (traditionally) to the site of the crime. The lights are dimmed and a few moments are left for purely auditory interpretation. A moment later an ominous figure carrying a flash-light enters, and Piffle and his associates rush out to find Pembray in their clutches. It is just what you thought it would be ; the physiologist is the villain of the piece. You feel how flat and feeble are the excuses of the man ; of course, Baker will look after the rabbits—he always does. And so the Professor is hurried away. That Dr. Piffle had not acted entirely forensically at the beginning of the scene is suggested by his rather abrupt departure now to leave Victor and Virginia alone. You think all is over, but there you are wrong. A dreadful creature appears at the back of the stage and approaches the innocent couple. In a second it has Virginia by the neck, and in another its neck is in the grip of Victor—a vast gorilla concealing the person of Mr. Schofield.

Pembray returns to explain. He was keeping Pogo, the gorilla, in the Physiology Department for a few experiments. Some days ago he had escaped and Pembray had been looking for him " all over the place." Pogo must have killed Sister Banner, the Dean, the Detective and Home Sister. " Oh, Pogo, how could you? There you are, Piffle; isn't he sweet? "

The curtain descended on a finale in which the whole cast appeared, thus demonstrating their availability.

In conclusion, it should be mentioned that there were some who, though they have not been so far referred to, did valuable work in their special lines. The band, consisting of Messrs. de Gruchy, Gilchrist, Littledale, Peacock and Rogers, kept us all awake during the intervals. Mr. Bishop rendered a similar service to the Residents, though in a different way. Mr. Littledale made most of those surprising noises off, while Messrs. Clegg and Beckett shifted the scenery so successfully that no one ever suspected their existence.

Reviews

Thomson's and Miles' Manual of Surgery. Published by Humphrey Milford, Oxford University Press. *Price*

THE eighth edition of this popular manual should receive a great welcome from the student of surgery. It is published in three volumes, the first devoted to general surgery, the second to surgical diseases of the head and neck and the limbs, and the third to the thorax and abdomen. The arrangement of the book is probably very familiar to the medical student; the first volume deals in turn with the various specific and non-specific diseases and treats very fully the diseases of blood vessels, of nerves and of the skin. The section devoted to the operations on blood vessels seemed to be a trifle brief, but this is merely an indication of the general high standard maintained by the book. The pages at which we carp contain more than enough material for the M.B., B.S. or Conjoint student, and it is only on comparison with the rest of the book that we dare to find any fault with this section. Again, in the pages on Hodgkin's disease it is somewhat surprising to find no mention of the Ebstein syndrome.

The second volume is extremely good. The section devoted to fractures is written with a refreshing clarity and is interspersed with a number of illustrations which do really assist the reader to a grip of the text. The orthopædic part of the volume is extremely easily readable and contains an astonishing amount of information in a small volume. The section on diseases of the jaw and the teeth is disappointing; that very vexed question of dentigerous and dental cysts and their very complicated classification is dismissed with a very brief note on dentigerous cyst and no pathology is offered. On the other hand, a quite full account of Riedel's thyroiditis is provided in the pages on thyroid diseases.

The volume on thorax and abdomen is quite full enough for passing any of the usual examinations.

A further drawback is the fact that in this book the amount devoted to radium treatment is so very small. It is depressing to find that, except in the case of the tongue, radium is dismissed with a remark such as, " in inoperable cases radium or deep X-ray therapy may be of use." Such treatment of the most important advance in modern surgery in a modern text-book gives the student but a poor impression of the value of radium and also a very poor idea of the way to use it.

The Diagnosis and Treatment of Venereal Diseases in General Practice. By L. W. HARRISON. Published by Humphrey Milford, Oxford University Press. *Price 25s.*

THIS book needs no recommendation to the reader, so well known is it. The fourth edition is a great improvement on its forerunners; it is fuller, more concise, and more useful than ever to the general practitioner. It lays great stress on the value of careful and thoughtful treatment in cases of gonorrhœa and deprecates very strongly the use of " rule of thumb " measures in treatment and of prognosis. So many practitioners are content to go on treating cases of syphilis and of gonorrhœa blindly, using drugs the action of which they cannot understand, not comprehending the perils of under-treatment and being only too well pleased if, after a few injections, the disease clears up, and being content to leave it at that and not insist on a routine examination at a later date. No one who reads this book through will ever fall into such an error, for the writer of it insists so strongly on this point. The book is eminently readable and is illustrated with many very good illustrations, some of which are in colour.

Not the least valuable part of the whole book is the section devoted to the medico-legal side of venereal diseases, and this has been brought thoroughly up to date by the author's collaborator, Dr. Crookshank.

We can advise anybody who is in search of a text-book on these diseases to buy this book and read it carefully; it will well repay him.

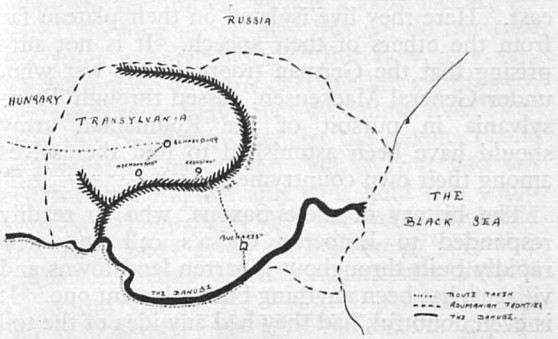
A Visit to Transylvania—"The Land of the Seven Castles"

By C. Fraser Brockington, Esq.

TO the east of the plains of Hungary lies Transylvania rising above the lowlands of eastern Europe like an island from the midst of the sea. To the south runs the valley of the Danube; to the east the valley of the Dniester To the west lie the plains of Hungary; to the north the plains of south Russia. Here is a little tableland, almost pathetic in its isolation, lying within the close embrace of the Carpathian Mountains; no more than the western edge, overlooking Hungary, remains unprotected. The range which curls so affectionately around the edge of the plateau, seemingly to prevent anyone from falling off, resembles (to one who has struggled along it) a long backbone with enumerable ribs; perhaps the remains of a prehistoric monster set by some giant around the plateau with Transylvania, thus enclosed, his child's playground.

The main body of this ridge, which runs at about 6,000 feet, is a narrow crest, in places so narrow that one man alone can walk in comfort between the two valleys, sloping sharply away on either side. The ribs, also with sharp crests and sides, are extremely plentiful and fall gently to the plains, reaching and ending there without any intervening foothills. Unlike the fertile plateau, the mountains are uninhabited except for shepherds, one or two of whom live in a hut on the upper slopes of each of the innumerable valleys; here they live through the summer months in solitude, piping to their sheep, with chamois and eagles for their only companions. These herdsmen are most picturesque with their leather sandals, their broad leather belts ornamented in silver and their long sheepskin cloaks. It is cold up in the mountains, and they are often enshrouded in mist; the herdsmen have need of their cloaks.

This small country, about the size of Scotland, which is thus protected on three sides by moun-



tains, has been named by its inhabitants "The land of the seven castles." For many months of the year the plateau basks in sunshine, and it has an exceptionally fertile soil. It is a land that one feels should, by special dispensation, have been undisturbed and peaceful throughout the centuries, respected as a sanctuary by all the nations. Its people should have tilled their fertile soil in peace and gazed upon their mountain horizon untroubled. Those who toiled up the slopes from the lowlands to reach them should have come as friends bearing presents and messages of peace. Unhappily, this is far from the truth. Of all the countries of the than this. It has for ever been fought over and world none has known more strife and bloodshed fought for. Hordes of fighting men from every angle of the compass have overrun it.

In its early days it was a Roman colony, but several centuries elapsed following the fall of the Roman Empire before civilisation was again brought to the land. This second colonisation took place soon after the Norman conquest of England, when, in the year 1135, the emperor then ruling over the vast Hungarian Empire of which this land was a part, called upon the German people of western Europe to make the journey (then a very long one) right across Europe to settle in the land. Accordingly a great body of people from the banks of the Rhine and Mosel, men of Flanders, men of Luxembourg and Saxony, the descendants of Charlemagne's Frankish Empire, emigrated and settled upon the plateau at the foot of the Carpathians. This people, ever since known as Saxons, who for the last 800 years have occupied this land, speak among themselves a dialect bearing a distinct resemblance to present-day English, a fact which calls to mind the similar emigration which, at the time the Saxons were making their way to Transylvania, must have been

taking place in an opposite direction towards Britain.

The decision of the Hungarian emperor to call upon the Germans to colonise his land seems to us now as strange. The result may seem even more strange, for it is as if a little patch of Germany has been carried thousands of miles away to the east. Here they live isolated on their plateau far from the others of their speech. It is not surprising that the German troops in the war who, under General Mackensen, passed through Transylvania in pursuit of the Roumanian army should have been astonished to find themselves among their own countrymen.

The history of these Saxons, who so readily responded to Emperor Geisa's call and who rapidly built throughout a barren land towns and villages, has been anything but a pleasant one. It is even doubtful, had they had any idea of the toil and strife that would be the lot of their descendants, whether these first colonists could have been induced to leave their Fatherland. It is a remarkable testimonial to their persistence, to their fighting powers and to the strength of their fortresses—in a word, to their worth—that these Saxons are still in the land. Not for a single day since their ancestors set foot in Transylvania have they been free. During the first centuries they were part of the great Hungarian Empire that then held sway; from about 1400-1700 their land was overrun by the Turks; they then came under the Hapsburg rule until, in 1867, Transylvania became part of present-day Hungary. After the war they were handed over to Roumania as her reward for entering the war on the side of the Allies.

Anyone knowing this history would expect to find here a land of the very greatest interest. He would not be mistaken. The land of the seven castles is a land more architecturally perfect than any I have ever seen. Nestling at the foot of the mountains which rise sharp from the plateau and dotted here and there over the plateau are the towns and villages which first grew up 800 years ago, and which have ever since retained that grace and charm which the German towns in the Middle Ages captured. In the centre of each town and every village stands the Kirchenburg, a combination of church and castle which the inhabitants found so useful in the time of the Turks. At the base of the steeple, *i.e.*, at the top of the tower, runs a balcony; here one can imagine the people standing in merry, jostling groups, pouring hot oil and rolling great stone balls upon the heads of the Turks. In many cases there is an outer loop-holed wall surrounding the church, with an upper balcony where you may stand and fire upon the enemy. To these defences, now carefully preserved, this people may well owe their existence.

If there is one feature which contributes more than any other to the beauty of these Saxon towns and villages it is the roofs. Sharply sloping against the winter snows, they have wide eaves and are beautifully tiled in old red tiles. Their excellence charms the eye wherever it may glance. Wander at your leisure through these towns, by winding streets, across cobbled squares, up and down steps and under archways and you must pause a hundred times to gaze at some graceful setting—a profusion of gables and jutting eaves, of ornamented spouts

and fantastic chimneys, from whose midst slit-like windows gaze down upon you on every side. As you return their gaze you are reminded of fairyland, and half expect to see the many characters of Grimm's tales. There are many hundreds of such villages, but of the original towns only three now keep intact their German character—Kronstadt, Hermannstadt and Schassburg; to these, for anyone who is studying architecture and for anyone who loves to wander round in places of ancient culture, I would advise a visit.

What has been said of the buildings may also be said of the people in this land. The original culture, which they took with them from Flanders and Luxembourg, has grown and flourished under continued adversity, as the same culture has grown and flourished in our own land. The Saxons, who now cherish their ancient lineage, are an educated and a cultured people. The country folk, farming their land, live simple lives, but are everywhere people of character. The towns folk take a pleasure in learning which is evidenced by the excellence of their bookshops. Those that can afford to do so have for long sent their children to finish their education in Germany or Austria.

As would be expected in a land over which successive nations have ruled, the original Saxon population has suffered many dilutions. It is

surprising that the Turks, who for 300 years trampled backwards and forwards over the land, should have left no vestige of their presence either in people or in dwellings. The Hungarians during the last 200 years flowed freely in, but of the million or so who were present at the outbreak of the war almost all left in 1919 when Transylvania was given to Roumania. The Roumanians, who prior to the war were present in small numbers as peasant folk, mountain shepherds, etc., living simply, have since the war flooded the land.

This last chapter of the Saxon story, the Roumanian colonisation of Transylvania, is in many ways the saddest. Everything in the power of Roumania is being done to Roumanianise the land. There seems to be no wish to preserve the Saxon culture and character, whose value is unappreciated. In their efforts to submerge the German population, the Roumanians have adopted every method that seems to them of any service. All the posts in the German-speaking towns, which have been held by Saxons, are now occupied by Roumanians, who speak only Roumanian. The Roumanian officials in the post offices and railway stations, policemen on point duty, all are forbidden to speak German. In the post offices and elsewhere notices are written in Roumanian; the names of the streets have been changed from the old German names to Roumanian; schools, except privately subscribed German schools, are Roumanian. The old custom of having children educated in Germany or Austria is prevented as far as possible by a tax. The atmosphere that this suppression creates is far from pleasant. I was able, in my journey through the country, to speak with many hundreds of people. All the Saxons are very bitter. Their maxim has always been, "So long as we may live we do not care what ruler we are under." But now they say, "Our language and our customs are suppressed. The taxes are so heavy that we cannot live."

For this condition of affairs the Saxons blame the English. One person said, "If it had not been for you English and your gold this could never have happened; but for you we should never have been given to Roumania." It is a little disconcerting when someone says to you, "Why did you do it?" as if I personally had been responsible, and very difficult to explain that the vast majority of Englishmen probably do not know whether Roumania has grown larger or smaller as a result of the war. This last chapter of a varied history may end in many ways. The Saxons who have endured so much may well endure more without extinction. I think that most Englishmen, whether or no they feel any measure of blame for the fate of this country, will wish that the land of the seven castles and its gallant people may long survive.

Correspondence

Training in Therapeutics

To the Editor of the GAZETTE

SIR,—May I support very strongly the plea you raise in "Passim" of your issue of September 19th, 1931, for more thorough training in therapeutics? One certainly has the impression on looking back that diagnosis was always stressed as the great function of a medical man, whereas treatment was relegated to a very secondary place—a five-minutes' afterthought at the end of a half-hour's discussion on diagnosis.

Consequently, on getting down to the job under circumstances in which one is limited to one's own knowledge and ingenuity for treatment, one finds oneself diagnosing with comparative ease, but ransacking books, periodicals and advertisements to find the best and latest methods of treatment.

One realises on getting out into the world what tremendous advantages a Guy's training gives along other lines, and one therefore has every reason to hope that along this very important line Guy's supremacy will be maintained.

Yours, etc.,

IVOR C. P. BEAUCHAMP.

Henrietta Bird Memorial Hospital,
Paoning, Szechuan, West China.

Rare Cases of Intussusception

To the Editor of the GAZETTE

SIR,—In your last issue the X-ray pictures of a case of sub-acute intussusception were described as unique. Surely this is incorrect. I can remember two cases. The first was a man about 35, whose radiographs were shown by Dr. Hurst at his Combined Round about 1925. He had been given a barium enema, but his X-ray pictures, identical with the ones in Mr. Wells's case, had remained a mystery until he was operated on and a chronic intussusception shown to be present.

The second case was a child, aged seven, admitted under Dr. Cameron between 1929-1930. I X-rayed her myself, and found exactly the same radiographic appearances, and operation proved it to be so.

I am sure that more of your readers have seen many other cases, and it will surprise me if a search of the literature will not reveal them described.

I apologise for being so indefinite with my dates.

Yours, etc.,

R. E. SMITH.

3, Horton Crescent, Rugby.

Sport

Rugby

Guy's v. Northampton

VISITING Northampton on Saturday, January 30th, Guy's were decisively beaten by 3 placed goals, a dropped goal and a try (22 points) to a try (3 points).

With the exception that Cunard was unable to make the journey, Guy's were at full strength, and Northampton fielded a powerful side which included several candidates for International honours.

The home forwards were far too good for the Hospital pack, and both in the set-scrums and line-out Northampton obtained the ball with such regularity that the Hospital backs had very few opportunities of showing their skill. However, in spite of this great advantage the home side were unable to press home their attacks until a quarter of an hour from the end, when the Hospital defence was weakened as the result of injuries to Alexander, Robin and Lewis. Robin was unfortunately kicked in the head when going down to a forward rush, and Alexander had the misfortune to twist a muscle.

The Hospital attacked from the kick-off and nearly scored in the first minute, when W. Lewis just missed dropping a goal. However, a few minutes later, following an excellent round of passing between the threes, Alexander crossed in the corner to give Guy's the lead.

A dashing raid by the home forwards was only beaten off with much difficulty, and Ashdown eventually beat two or three men before he was tackled a yard or two from the line. Giesen marked from Knott's clearance and dropped at goal. The ball went to Daniels, who dashed away and passed to Slow; the latter kicked ahead, but unluckily knocked on with the line at his mercy.

Soon afterwards Slow placed his side ahead with a clever dropped goal, and near the interval, following a delightful run, King registered a try, which was not converted.

After the change of ends, Northampton did practically all the attacking, but so solid was the Guy's defence that 20 minutes went by before they added to their score. Slow was again the scorer, when he darted over for a try, which Weston converted, and this was followed by further tries by Treen and another by Slow, both of which were improved upon by Weston.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; W. H. Lewis, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, I. G. Robin, R. G. Hunt, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Cambridge University

THE return fixture with Cambridge University was played at Honor Oak Park on Wednesday, February 3rd, and resulted in a win for the Hospital by a placed goal and a try (8 points) to a penalty goal (3 points).

It was originally intended that this would be a test for the Hospital Cup-Tie team, but, unfortunately, owing to injuries and illness, none of the regular centres were able to turn out. This was a great pity, as Guy's had enough chances to win the match by a substantial margin of points, but the weakness in the centre was apparent throughout the game, and many scoring opportunities were wasted by the centres, who either fumbled, knocked on or missed their pass entirely when favourably placed. The result was that Windsor Lewis had to plough a lonely furrow in either trying to break through on his own or getting the ball out to his wings by clever cross-kicking.

The forwards were well matched, and Eustace had all his time occupied in watching Bowcott, the 'Varsity scrum-half, who sent out an excellent service to his threes. It was just as well for Guy's that the passing of the Cambridge threes was so stereotyped, otherwise some of their movements would have caused the Hospital defence many anxious moments.

The weather was ideal when Cambridge kicked off before a very good attendance. After ten minutes' play, Guy's missed a fine chance when Clarke caught the full-back in possession and the ball went loose, but Johnson over-ran the ball and the visitors cleared. However, the latter made amends a minute or so later when he followed up a punt by Windsor Lewis and, although tackled by the full-back, he managed to wriggle clear, to score in the corner.

Following a nice round of passing between Lewis, Ashdown and Lindsay, Guy's nearly crossed again, but Browne, the 'Varsity full-back, secured a mark and sent Guy's back.

From a penalty, Lewis found touch in the visitors' 25, and this was followed by a passing movement started by Johnson, but which faded away when Burrows was collared with a clear field before him.

Guy's continued to monopolise the attack, and Windsor Lewis narrowly missed a drop at goal. With Cambridge penalised for handling in the scrum, Hogbin missed an easy kick at goal, and soon after Lewis broke through, but was recalled for a forward pass.

Cambridge made a brief excursion to the Guy's 25, only to be sent back by Lewis.

Off-side against the 'Varsity gave Hogbin another chance to score, but he missed an easy penalty in front of the posts. Lewis, Morgan and O'Shea all made desperate efforts to cross, but were held up on the line.

After the interval, an early penalty to Cambridge enabled their forwards to find a footing in Guy's 25, but they were driven back and, with one of their centres fumbling a pass, Guy's all but scored, and Cambridge had a narrow escape when W. Lewis missed a drop at goal by the narrowest of margins.

The visitors then made a determined attack on the Guy's line and Clegg had to touch down. From the kick-off Burrows collected and made a fine run for three-quarters of the length of the field before he was brought down. A cross-kick which Lindsay accepted enabled Johnson to punt ahead, and Drummond was well up to gather and cross for a good try, which Hogbin converted.

An excellent solo effort by Lewis nearly met with success, but one of the Hospital forwards knocked on at the critical moment. Delafield received a long pass from a line-out and nearly sent in Harris, and immediately afterwards Brown made an exceedingly clever clearance from W. Lewis.

Cambridge then made a spirited attack, and for a few moments Guy's were sorely pressed. Clegg cleared eventually, although he was rather lucky as, instead of kicking to touch, he ran across field and was caught in his own 25.

Near the end Guy's were penalised, and from near the half-way line Leather kicked a splendid goal for Cambridge.

Team.—W. B. Clegg; D. E. Ashdown, A. G. Burrows, M. J. Lindsay, A. G. Johnson; W. H. Lewis, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, J. Cunard, R. J. Drummond, D. M. Leeming, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Rosslyn Park

ON Saturday, February 6th, Guy's received Rosslyn Park at home, and were defeated by 2 goals, a penalty goal and 2 tries (19 points) to a penalty goal and 2 tries (9 points).

The Hospital were weakened considerably through the absence of five of the regular forwards, and, in addition, R. J. Eustace was unable to turn out.

On the other hand, Rosslyn Park fielded a powerful pack, who dominated the game throughout. Their forwards at once settled down to a strong game and played with plenty of dash, Skinner, P. T. and J. N. Cooper and Forbes-Barrett working particularly hard.

With the pack doing so well, Woodhouse, the Park captain and scrum-half, was able to send out an excellent service to Collins, who, apart from some bright dashes and clever kicking, did not neglect his men behind.

Guy's were undoubtedly saving themselves for the Cup Tie against Bart.'s, the result being that much of their football was uncertain and ragged.

Windsor Lewis was the one exception, and in a losing game he gave a brilliant display. The three-quarters were not given many opportunities until towards the end of the game, when they scored twice in quick succession.

Woodhouse and Skinner scored the first two tries for the visitors, Haddon-Cave converting one. Later on, Hogbin kicked a penalty for Guy's, and Woodhouse retaliated with a similar effort for the Park. J. H. Cooper added another unconverted try for the visitors, and then Guy's registered two tries by Giesen and Ashdown, which were not converted.

Near the end Forbes-Barrett completed the discomfort of Guy's by scoring another try, and Woodhouse added the goal points.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; W. H. Lewis, J. Howell; R. G. Hunt, A. G. Heberlein, T. C. Outred, J. A. T. Rowlett, D. M. Leeming, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Inter-Hospital Cup—Second Round
Guy's v. Bart.'s

AT Richmond on Saturday, February 9th, Guy's accomplished a splendid performance when, in the second round of the Inter-Hospital Cup, they defeated their old friends St. Bart.'s by a placed goal and 2 tries (11 points) to nil. It will be recalled that last year, when Guy's were warm favourites for the Cup, St. Bart.'s defeated them rather surprisingly in the first round.

This season the Hospital have shown such indifferent form that even the most optimistic of their supporters never expected them to beat Bart.'s so decisively. However, the whole team rose to the occasion magnificently, and were superior in every position—the outstanding feature of the match being the manner in which the Guy's pack confounded their critics; they not only held their own but also mastered the opposing pack to such an extent that Windsor Lewis elected to have a scrum instead of a line-out whenever possible.

O'Shea has never hooked better, and the ball was heeled much quicker than has been the custom in some of the club games.

Although Eustace received the ball fairly regularly, he had to be particularly smart to avoid

the close attentions of his opposite number, J. C. T. Taylor, the Bart.'s captain, who made a desperate effort to redeem the failure of his forwards.

Windsor Lewis, the Guy's captain, was the inspiration of his side—in spite of the fact that he was so closely marked, he managed to set his threes in action whenever an opportunity presented itself; at the same time he was ever ready to find a gap in the defence of the opposition, apart from having a drop at goal whenever favourably placed.

Both in attack and defence he was splendidly supported by Alexander and Giesen, both of whom were in their best form. Johnson was always alert to seize the slightest chance to race through, but Ashdown, although good, was rather inclined to be over-anxious to score, with the result that, on two or three occasions, he was too far forward to receive ideal passes from Alexander.

Clegg acquitted himself well, but he had not nearly so much work to do as John.

The game was fought out at a terrific pace and, in spite of the relentless tackling and marking, there were many bright moments of open play.

Very little progress was made by either side in the early phases of the game, but gradually Guy's gained a pronounced advantage without any tangible result being obtained.

Unsuccessful drops at goal by Lewis and Kingdon and a series of charged-down kicks characterised the alternating attacks of the first half-hour. Then a brilliant breakaway by A. R. Clarke, splendidly backed up by T. Morgan, enabled D. E. Ashdown to run up to the full-back before he was thrown into touch, a few yards from the line.

From the scrummage that followed the Guy's forwards and their halves opened up another and successful attack. Eustace quickly transferred the ball to Lewis, who in turn sent it to Alexander, the latter finding a small gap in the moving defence, slipped through it in a flash and registered an excellent try, which Hogbin failed to convert.

Just before the interval, Kingdon made a very fine run for Bart.'s, but his final kick over the head of Clegg was too hard and nothing resulted.

After half-time, Guy's continued to have the better of matters, and after Ashdown had crossed the line, only to be recalled for a forward pass, Giesen registered a second try for Guy's following good work by Alexander—this time Hogbin converted, to give the Hospital a lead of eight points.

The Bart.'s forwards then brought off some good loose rushes, which ended when Hogbin broke away on the blind side of the scrum and eventually passed to O'Shea. The latter flung out a pass to the left, which Johnson met with his foot and, by clever ball control, kicked ahead to touch down for an unconverted try, which proved to be the final score.

It was a clever win, and the members of the Guy's side are to be congratulated on their excellent performance, which they fully deserved.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; Windsor H. Lewis (Capt.), R. J. Eustace; J. S. Batchelor, J. P. O'Shea, J. Cunard, R. J. Drummond, D. M. Leeming, R. A. P. Hogbin, A. R. Clarke, T. Morgan.

Hockey

Guy's v. Middlesex

GUY'S played Middlesex at Richmond on Wednesday, February 3rd. The Hospital was at full strength, but everyone took a long time to settle down and, although obviously the stronger side, they allowed themselves to be shaken by the unscientific bustling hockey played by Middlesex.

After 20 minutes Guy's took the lead from a scramble in the circle, Cooper hitting the goal. A few minutes later the same player again scored. Middlesex rallied and scored, but Lyne got one for the Hospital just before half-time, when the score was 3—1.

In the second half there was only one side in it. Guy's forwards suddenly found their form, and the ball went backwards and forwards across the line, play being entirely in the Middlesex half. Lyne scored three more goals, Clarke put on two more, and Tilleke one, the final score being 9—1 in favour of Guy's.

Although eventually winning by a comfortable margin, it was evident that there would have to be a general all-round improvement before any hope could be entertained of beating Bart.'s. The ball was too frequently passed to an opposing player, and Lyne, in particular, did not get the backing up he ought to have had from the other forwards.

Result.—Guy's, 9; Middlesex, 1.

Team.—J. B. Schofield; G. N. Carrell, F. Hayward (Capt.); T. F. Todd, A. G. Richmond, S. N. Tinkler; R. O. F. Tilleke, J. W. Dryland, H. O. Lyne, H. G. N. Cooper, C. A. Clarke.

Guy's v. Bart.'s

THE Hospital met Bart.'s at Richmond on Wednesday, February 10th. The ground was covered with half-an-inch of snow and was extremely hard. Seldom can the Hospital have done itself so little justice. With all due regard to the appalling weather, there was no

reason whatever for the complete apathy of almost everyone. From the bully-off it was obvious that Bart.'s was the better combination, Guy's having to defend hotly for the first 20 minutes. Goals were bound to come from the way in which, time after time, the wing men were allowed to get away and send across perfect centres. Bart.'s were soon two goals up.

For about five minutes after this the Hospital played with more energy, but it was left to Richmond, who played an exceedingly good game throughout, to come up into the circle and flick in one of the best goals of the match. This success proved short-lived, Guy's again going to pieces and allowing Bart.'s to put on three more goals before the interval (1—5).

In the second half matters were much the same. Lyne failed to keep the forwards together, while the Bart.'s wings, especially the left, did much as they pleased. Richmond and Hayward alone prevented a larger score; as it was Bart.'s scored three times more (1—8).

Under any conditions Bart.'s would doubtless have won, but with a minimal amount of effort the Hospital might easily have halved the score against them.

Our thanks are due to Dr. and Mrs. Poulton, who very kindly came and supported us in spite of the weather. Our apologies are due to them for so signally failing to rise to the occasion.

Result.—Guy's, 1 goal; Bart.'s, 8 goals.

Team.—J. B. Schofield; G. N. Carrell, F. Hayward (Capt.); T. F. Todd, A. G. Richmond, S. N. Tinkler; R. O. F. Tilleke, J. W. Dryland, H. O. Lyne, H. G. N. Cooper, C. A. Clarke.

Fencing

Guy's v. Old Westminsters

ON Saturday, February 13th, Guy's entertained the Old Westminsters' Fencing Club, and won by the narrow margin of 12 defeats to 14. This was due to a decisive win at epée, since both foil and sabre events were lost by the odd fight. The fencing throughout was of a high standard and refreshingly free from the loose and scrambling tactics so often seen nowadays.

With the foil, Paterson, who is always at his best against good, orthodox fencers, fought extremely well to win all his bouts. Morris was not quite so good as usual with this weapon, but improved in the later events. Forbes fought gamely, but was up against heavy odds.

In epée, Lawrence proved unexpectedly successful, with two wins and a coup-double to his credit. Paterson fought with admirable patience, and was rewarded with two victories. Similar success attended Morris, and was well merited. This success of our epéeists is very encouraging in view of some recent debacles with this weapon.

Irish failed, perhaps, to reach his best form with the sabre, but he was a trifle unlucky not to win one more fight than he did. Morris, too, had some unfortunate decisions, but was undeterred and pulled off two fights. Paterson seemed rather over-cautious, and his attacks lacked decision.

The match was refereed by Mr. C. L. de Beaumont, of the Salle Bertrand.

Scores: Foil—Paterson, 0 defeats; Morris, 2 defeats; Forbes, 3 defeats. Epée—Lawrence, 0 defeats, 1 coup-double; Paterson, 1 defeat; Morris, 1 defeat. Sabre—Morris, 1 defeat; Irish, 2 defeats; Paterson, 2 defeats.

Inter-Hospital Fencing Competition

THE Annual Competition for the Inter-Hospitals Fencing Cup was held at the London Fencing Club on Saturday, January 30th, when the Guy's Hospital Fencing Club, by reason of their excellent team work rather than of individual effort, brought back the Cup into the keeping of the Hospital, gaining a lead of 8 points over their nearest rivals, St. Thomas's Hospital.

Guy's were represented by Paterson and Monkhouse in the foil event. After a barrage for first and second place, Paterson was narrowly defeated by Stroud, of St. Mary's Hospital, and was then obliged to be content with second place. He fought extremely well throughout, suffering only one defeat, at the hands of Critchley (St. Thomas's), whose very vigorous methods appeared to disconcert his opponent. His first fight with Stroud produced the best fencing of the day, Paterson winning a prolonged and skiful encounter which was taken to the seventh list.

Monkhouse, after a shaky beginning, settled down to the attractive style which we expect of him, and succeeded in obtaining third place.

In the epée event, Guy's, again represented by Monkhouse and Paterson, secured second and fourth places respectively. Monkhouse fought with characteristic aggressiveness, and, except in his fight with Smith, was seen to advantage, his footwork especially being of a high standard. Paterson fought well, but was unfortunate in meeting opponents whose vigour was quite equal to their skill.

The sabre event was more remarkable for the zeal of the combatants than for the quality of the play. The first place was deservedly secured by S. F. Smith, of St. Thomas's Hospital, who was undefeated. Guy's were represented by Morris and Irish. Morris, after a barrage, obtained second place. He was probably the most skilful sabreur in

the pool, and had his footwork been of the same order of excellence as his sword-play he would undoubtedly have been seen to greater advantage. Irish, never at his best when the fighting is very rough, at times produced some subtle and brilliant strokes, but was only able to secure fourth place.

The Captain, D. H. Irish and the rest of the team are to be heartily congratulated upon restoring the Cup to its "rightful owners"—we have now won the competition four times out of six.

We should like to thank Sir Francis and Lady Shipway for their encouraging presence, and also the many friends who came to support the team.

Results : 1. Guy's .. 49 points.
2. St. Thomas's 41 ,,
3. St. Mary's .. 34 ,,
4. Middlesex .. 11 ,,
5. St. George's .. 0 ,,

Hospital Information, etc.

Pass List

CONJOINT BOARD.
January, 1932.
FINAL EXAMINATION.

SECTION I.

Pathology.

K. R. D. Coles	C. A. Clarke
R. W. Pickering	W. Lewis
L. I. S. Campbell	D. W. Geidt
J. Cunard	J. B. C. Murdoch
G. J. Evans	A. Bower Davies
S. C. Shore	W. G. Gill
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SECTION II.

PART I.

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SECTION II.

PART II.

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SECTION II.

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R. G. Knight	R. W. Pickering
C. G. Baker	L. I. S. Campbell
G. A. Miller	J. Cunard
G. R. C. Rayner	

† Now holds Diploma.

OXFORD UNIVERSITY.
January, 1932.
B.M.
W. J. Cotton.
December, 1931.
B.M., B.Ch.
Anatomy and Physiology.
G. O. Jelly
Medicine, Surgery and Obstetrics.

J. M. Burtenshaw	W. J. Cotton

Pathology.

R. H. Bolton	D. W. Geidt
A. C. Cox	R. F. Lomax
C. H. Fagge	W. H. Owles

Forensic Medicine and Hygiene.

P. M. F. Bishop	W. H. Greany
R. H. Bolton	W. H. Owles
H. G. N. Cooper	

Materia Medica.

C. H. Fagge	D. W. Geidt

CAMBRIDGE UNIVERSITY.
B. Chir
M. A. Rushton

Papers by Guy's Men

C. J. P. Grosvenor and A. H. Douthwaite. Case of pyrexia of obscure origin. *B.M.J.*, 1932, i, 139.

G. B. Dowling. Ætiology of dysidrosis. *B.M.J.*, 1932, i, 142.

P. M. May and S. F. Dudley. Active immunisation and diphtheria. *Lancet*, 1932, i, 172.

R. E. Lane. Punctate basophilia in diagnosis of plumbism. *Clin. J.*, 1932, lxi, 42.

R. O. Moon. Prognosis in diseases of heart. *Pract.*, 1932, cxxviii, 159

W. H. Bowen. Diagnosis in acute appendicitis. *Pract.*, 1932, cxxviii, 137.

Appointments

J. Gray, F.R.C.S., Research Fellow in Surgery, Lester Institute, Shanghai.

W. A. Mill, M.S., Assistant Surgeon, Nose, Throat and Ear Dept., St. Thomas's Hospital.

Change of Address

J. Gray, F.R.C.S., c/o Henry Lester Institute, 310, Shantung Road, Shanghai.

Birth

SCHOLEFIELD.—On Feb. 10th, 1932, to Queenie, wife of B. G. Scholefield, F.R.C.S., 12, Northbrook Road, S.E.13—a daughter.

EDS. { J. S. B. / G. A. M.L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

WE have recently received the Final Report of the *Lancet* Commission on Nursing. This treatise embodies a wealth of helpful and balanced criticisms, and should be carefully studied by all concerned in the administration of the nursing profession.

In the first place, a small but not unimportant point is raised with regard to the admission of probationers. It is tactfully suggested that the rules and contracts might be couched in more genial terms. This would conduce to a more friendly welcome of candidates.

One of the salient factors that militate against increase in the ranks of the profession by the type of girl most required is undoubtedly that, up to the present time, embarking on such a career has entailed the sacrifice of her previous social life. This obviously ought not to be the case. It is felt that steps could and should be taken by the authorities to bring the regulations of the Home into line with more modern views. There is no reason why a breaking away from obsolete traditions should in any way be inconsistent with the amount and type of discipline obviously necessary in this profession.

Another matter which receives careful consideration is the off-duty time allowed. It is recommended that each nurse should receive at least three hours a day and one whole day a week off duty. Furthermore, she should have at least a week's notice of the free time allocated to her. Many probationers are aggrieved at the contrast between the responsibility entrusted to them in the wards with the apparent lack of confidence reposed in them in the Home, as evidenced by the numerous restrictions imposed upon them. It is suggested that it should be unnecessary for nurses to have to obtain permission to be out between the hours of 8 p.m. and 10 p.m.

Concerning institutional life, it is advised that greater laxity should be permitted in the Home, with the cultivation of a more friendly spirit. More facilities should be allowed for smoking, and the Home run more in the nature of a club than a school. The view held by some of the more senior members of the profession to the effect that the maintenance of unabated strict routine and discipline is a very necessary part of a nurse's training is deemed to be old-fashioned and altogether untenable.

The dietary of the Home does not escape criticism. Whereas its wholesomeness and sufficiency in most cases are not challenged, yet monotony and carelessness in preparation do much to rob it of its appetising properties. A compulsory bedtime of 10.30 p.m. instead of the more usual 10 p.m. is regarded as a reasonable concession.

The Report furnishes some pertinent comments on the pay of nurses. Particular emphasis is laid on the inadequacy of the salaries of Sisters and Staff Nurses and of provision of superannuation. Undoubtedly the poor financial prospect when training is completed deters many would-be nurses. The method in force in some hospitals of raising probationers' pay is condemned as attracting unsuitable applicants. Furthermore, it is pointed out that the parents of the type of girl most needed look more to the future of their daughters than to the economic proposition of the comparatively few years of training.

Yet another point in the Report with which we find ourselves in agreement relates to the physical work done by nurses. It is suggested that much laborious and unskilled work could well be done by ward-maids, the staff of whom might be increased with advantage. Since our entry into the wards we have always been at a loss to see the value of the part played by long hours of polishing taps and scouring sinks in the training of a nurse.

There seems to be no doubt that if the present state of affairs is allowed to continue, the widespread shortage of nurses is bound to result in

detriment to the patients. Now is the time to act. We feel that the situation is one which demands the very earnest and careful consideration of the administrators of the nursing profession. With the abandonment of many obsolete traditions and the introduction of more modern views the management of nursing could be brought into conformation with that of other professions of similar standing, without any loss of the dignity and prestige it has hitherto enjoyed.

WE should like to congratulate the First Fifteen on their victories over Bart.'s and St. George's in the Hospital Cup, and to express to them our fervent hope for similar success when they meet St. Mary's on March 16th. At the same time we regret to hear that some over-enthusiastic Guy's supporters have aroused the ire of the authorities by their hooliganism and gate-crashing. Whilst a certain amount of ragging forms a recognised part of any Cup match, there is no excuse for those who, gaining admission by force or otherwise, evade payment. It may not be generally known that the profits from these matches are divided between the competing hospitals, so that those who do not pay are merely reducing the grant to their own hospital. We feel that if those concerned will regard the situation from a sensible point of view, there will be no cause for complaint in the future.

WE should like to draw attention to the Adrian Stokes Memorial Fellowship, a notice concerning which will be found in this *Gazette*. This Fellowship is open to those medical practitioners or graduates in Science, Pathology or Bacteriology who are anxious to carry out further studies in those subjects. Applications for nomination will be considered by the School Council early in July. When we remember the close relationship that exists between Professor Adrian Stokes and this Hospital we feel that the Fellowship will appeal particularly to Guy's men.

WE have been asked to announce that old Guy's men may obtain reserved seat tickets for the Cup Final on March 16th from Mr. W. K. Rist, 78, Kensington Gardens Square, W.2. Remittances should be sent with applications.

Obituary

WILLIAM ORSMOND

WE regret to have to announce the death of William Orsmond, who died on January 17th, at Brits, South Africa, as the result of injuries sustained in a motor accident. William Orsmond took the degree of Licentiate in Dental Surgery in 1923, and his untimely death will be mourned by all who knew him.

The Suprarenal Gland

A Paper read before the Guy's Hospital Physical and Physiological Societies, January 28th, 1932

By Mr. W. N. Mann

MR. CHAIRMAN and GENTLEMEN,—The first to give any detailed description of the adrenal bodies was Eustachius, who, in 1533, published an account of their anatomy. In 1716 the Bordeaux Academy of Sciences offered a prize for an essay on their use, in which competition Montesquieu—the famous French philosopher—acted as judge. Among the suggestions put forward were that they supported the stomach, secreted " black bile " and made the blood " more subtle." Perhaps it is fortunate for the reputation of Montesquieu that he should have deemed none of these theories worthy of the prize, and published a satirical report of the fanciful suggestions of the candidates.

Although these ideas may seem to us both grotesque and absurd, it is true to say that, although a plausible explanation of the working of the medulla has been made, the primary function of the cortex still remains exceedingly obscure.

THE EVOLUTION OF THE SUPRARENAL GLAND

It is only in those animals which have amnia that a definite structure containing both " cortical " and " medullary " tissue is found. In lower animals the organ is represented by a number of small bodies, the amphibia occupying an intermediate position between the amniota and the anamnia.

Whether adrenaline exists in invertebrates has been the source of considerable discussion. Some observers describe the existence of chemically and physiologically allied substances in the hypobranchial gland of *purpura*, while others have reported chromaphil tissue in the abdominal ganglia of the leech. Whether these structures are the true forerunners of the suprarenal gland of the mammalia or not is yet to be proved.

The two distinct elements which in higher animals constitute the suprarenal bodies are first seen in that lowly vertebrate the lamprey. Both are very closely related to the main blood vessels of the animal, and the cortical portion consists of small, irregularly lobulated structures projecting into the lumen of the posterior cardinal veins, the renal arteries and the vessels on the dorsal surface of the kidney. Histologically they consist of cylindrical or polyhedral cells staining black with osmic acid, and they are true cortical representatives. The medulla is represented by a series of chromaphil bodies related to the large arteries and extending from the second gill-cleft tailwards.

In the sharks these scattered bodies are condensed in the case of the cortical organ to a single rod-shaped structure near the posterior part of the kidney, and this is physiologically and histologically similar to true cortex. The chromaphil tissue is collected as a paired organ on branches of the aorta, in very close relationship with the sympathetic trunk.

As we go higher in vertebrate evolution, the close anatomical relationship between cortical and medullary tissue becomes more and more evident, but it is only in the mammalia that a suprarenal gland possessing true medullary and cortical tissue in close relationship is found.

This account of the phylogeny of the suprarenal gland is not merely of academic interest, for it does explain one fact, and may explain—when our knowledge becomes fuller—another in connection with the gland. The first is the frequent occurrence of accessory cortical tissue in the form of " rests " in the abdomen, and especially in relation with the testis of the higher mammals. The existence of these frequently microscopic structures has rendered much of the work on cortical extirpation of little value since, when required, they frequently hypertrophy to such an extent that their secretion becomes sufficient for the needs of the organism.

The second suggestive point is a possible physiological relationship between the cortex and the medulla, which their close anatomical proximity would seem to indicate. Unfortunately, however, it is true to say at present that little interdependence between the two structures has been demonstrated; nor does it seem likely from the results at present being obtained that an early explanation of a reciprocal function is likely. Undoubtedly this is due to our very imperfect knowledge of the function of the cortex; because it seems difficult to believe that some explanation will not be forthcoming to explain the differences in life between the higher and the lowly vertebrates that have made such a unique arrangement in the structure of the suprarenal necessary for its functional integrity in the mammalia.

THE EMBRYOLOGY OF THE GLAND

It has been held by Kohn that the suprarenal medulla is nothing more than a suprarenal paraganglion which has become included in the true glandular tissue of the cortex. Bruni, however, in 1912 described the development of the chromaphil material in the frog, and found that it develops directly from undifferentiated neural extoderm and that its relation with the sympathetic system is entirely secondary in nature.

Masses of chromaphil tissue are found related to the aorta and its branches, but these undergo retrogressive changes and are not found after birth, except in the case of the carotid body. Nevertheless, their transient existence gives a very striking illustration of the modern interpretation of Von Baer's law that the embryo passes through the embryological stages of its ancestors.

The cortical tissue originates from the cœlomic epithelium on each side of the root of the mesentery, cranial to the primitive kidney. Whereas the medulla is supplied with sympathetic nerves, no innervation of the cortex has yet been demonstrated.

Before going on to explain the manner in which the suprarenal gland is said to work, it would be as well to explain the apparent discrepancies in experimental results obtained in partial or complete extirpation of the organ. The first is the difficulty of the operation, leading to a high mortality on that account alone, but the second is one which cannot be overcome by mere technical perfection. This is the existence of accessory tissue in the form of " rests," usually of cortical substance. Because of this fact, animals which ought to die disappoint the physiologists by living, and dogs, after complete bilateral adrenalectomy, persist in attaining a venerable and happy old age. Nevertheless, by a careful choice of subjects it has been found possible to find in which animals the presence of " rests " is sufficiently uncommon to permit of their being ignored.

It is not my intention to say very much about the suprarenal medulla. Its function as the secretor of a sympathetico-mimetic hormone in times when a supra normal demand is thrown on the organism is well established, especially by the

work of Cannon in crossed circulation experiments. Extirpation experiments have shown that it is not essential to life so long as the demands made on the organism are not too great; nevertheless, the fact that the presence of adrenaline in the suprarenal vein is in higher concentration than it is in the corresponding arteries points to a continuous secretion of the active substance even in the normal condition of the body. In this connection it is well to observe that the medulla is plentifully supplied with splanchnic fibres—which presumably convey the incitement to secrete—and that the gland is the most vascular organ in the body, thus ensuring a rapid distribution of its active secretions.

The activities of the cortex are so numerous, and they affect so many aspects of bodily function, that it is impossible to deal with them together in the same way that all the effects of adrenaline may be summed up in the action of that secretion on the sympathetic endings.

Since 1849, when Addison, of this hospital, made his classical observations on the relationship of adrenal insufficiency to the disease which now bears his name, experiment has definitely shown that the clinical picture of this disease is due to cortical and not to medullary deficiencies.

In addition, many attempts have been made to isolate some active principle, the absence of which would account for the functional disturbances in disease, and which, on injection, is able to keep adrenalectomised animals alive.

Perhaps one of the most interesting suggestions as to the true nature of the gland is that it is a detoxicating centre for the body. The syndrome of Addison's disease, as well as the symptoms shown by animals who have had their suprarenals removed, suggest that death is due to a rapidly fatal intoxication. The principal symptoms are anorexia, asthenia, apathy, low blood pressure, a slow and irregular heart and shallow respiration. The changes in the blood are significant; a large increase in nitrogen—chiefly in urea—a rise in calcium and a fall in blood sugar. In addition, the blood becomes concentrated, its viscosity may be more than doubled immediately before death and there is general congestion of the pancreas and intestinal mucosa.

Further evidence for this action of the suprarenal cortex lies in the results obtained in experimental animals. In these it is found that adrenalectomy reduces the minimum lethal dose of many toxins, including those of bacterial origin.

In this connection it might be observed that the theory which suggests that the function of the cortex is to detoxicate excess tryptophane and tyrosine derivatives, etc., has very little supporting evidence. The theory claimed to explain the bronzing of the skin in Addison's disease as being due to the conversion of these phenyl residues into melanin and its deposition in the epidermis. So far, however, no adequate explanation for pigmentation in adrenal insufficiency has been advanced, and it has never been observed in experimental animals.

We have, then, the theory that the cortex is a detoxicating centre for the body. Straightforward and satisfactory as such an explanation might appear superficially, it is by no means sufficient to explain the extraordinarily complex changes which occur in animals with either too much or too little cortex. It is evident that the intoxication, after the suprarenals have been removed, may be ascribed either to a primary action of the cortex in a detoxicating mechanism or following some other disturbance of cortical function as purely a secondary effect.

The evidence for this latter idea lies in the changes in lipoid distribution after destruction of the gland. The work of Prof. Gartano Viale, of Genoa and Santa Fé, has provided considerable enlightenment on this subject. He measured the toxicity of serum from dogs in different stages of cortical deficiency by its action on isolated frogs' hearts. His general conclusion was that this toxicity only came about as a result of intestinal lesions, and in those animals in which the alimentary canal remained intact no toxicity was apparent. Viale also maintains that the surface tension, osmotic pressure, calcium, uric acid and protein concentrations in experimental dogs show no striking variations from the normal; on the other hand, there is an enormous rise in the viscosity of the blood. It is usual for it to rise from the normal figure of five to seven or eight, and in one case—immediately preceding the death of the animal—the value of 12 had been observed.

The immediate cause of this viscosity effect is not loss of water but diminution of plasma. In three days the red blood count may be doubled and the white blood count increased nine times. It is interesting that the eosinophils rise from 6 per cent. to 15 per cent. in five days and the lymphocytes decrease to 1 per cent. In this way a hydromechanical obstacle to the circulation of the blood occurs, and it is, perhaps, rather to the salt solution in which certain supposed cortical hormones have been injected (rather than to the contained "active principle," so-called) that the postponement of death is due.

It has long been known that the cortex is exceedingly rich in lipoids, and considerable evidence has been put forward to show that the suprarenal cortex controls the lipoid metabolism of the body.

The lipoid phosphorus (a measure of lecithin content) is augmented after cortical extirpation.

On the other hand, the chloline concentration is decreased enormously from about 20 milligrammes per cent. in the brain of a normal dog to 1 milligramme per cent. after operation. This is explained by the theory that lecithin ceases to be metabolised, so that an increased concentration of this substance appears in the blood and a decreased concentration of choline in the tissues. Further evidence would seem to support such an idea. Firstly, that the suprarenal gland is the richest organ in lecithinase—the enzyme which converts lecithin to choline—in the body, and, secondly, that although the muscles of normal animals contain the enzyme, no trace is found after operation. Further, Bianco showed that the concentration of lecithinase in the suprarenal vein is greater than it is in the artery or in the jugular vein. Also the lipoid-phosphorus content of the blood reaches its maximum in the suprarenal vein.

Viale sums up the whole question of the suprarenals and lecithin metabolism as follows : " Death which follows extirpation of the glands can, no doubt, be attributed to the disturbance in the lipoid exchange in all the tissues. In particular would this seem true of the nervous system, which explains the hypoexcitability of the cerebral cortex and the sensory apathy which are two of the principal symptoms of suprarenal insufficiency. One cannot neglect the hypothesis that the intestinal lesions also observed may be due to trophic disorders on account of lesions in the nerve supply. The importance of the suprarenal in the metabolism of lipoids can also explain why congenital deficiency of the organ should be concomitant with malformation and defective development of the nervous system.

This theory of the lack of choline is attractive, in so much as it will account for most of the clinical observations on Addison's disease.

We must now consider exactly what the action of choline is and how it is produced. Choline is produced in the tissues by the hydrolytic action of lecithinase on lecithin, but especially is this action carried out in the gland itself, as analyses of the blood inflow and outflow readily show. In general, the concentration of choline in the suprarenal vein is from three to five times that in the general circulation.

It is suggested by Viale that the action of choline bears an exceedingly interesting relation to adrenaline. Working with Combes, he found that the injection of adrenaline into normal animals is followed by a discharge of choline. No nerve supply to the cortex has been demonstrated, so that presumably excess of adrenaline in the blood causes a discharge of choline by its direct action on the cortex, and that the choline so liberated neutralised the action of adrenaline. Further, it has been found that the injection of adrenaline into those animals lacking the suprarenals causes earlier death. It is true that other observers have found that the injection of adrenaline prolongs life in these cases, but apparently these experiments were performed on animals in which the entire gland had been removed. It is evident that such animals were suffering from adrenaline lack—since the medulla secretes continuously—and injection of small doses would undoubtedly improve the animal, whereas large doses, unable to have the excess neutralised in its action by choline, would have the reverse effect. Thus the use of adrenaline in Addison's disease may be defended, for a lesion of the cortex may also affect the medulla to some extent. And so the injection of adrenaline in small doses will improve the sympathetic tone and cause a general improvement in the patient's condition.

The way in which choline works to neutralise the effects of sympathetic stimulation may be explained by regarding it as vagotropic or, if the word is permissible, parasympatheticomimetic. The experimental evidence for this—although the truth of the theory, as might be expected, has been recently denied—is striking.

After adrenalectomy the oculo-cardiac reflex is suppressed or inverted, peristalsis ceases, and section of both vagi causes not tachycardia, but either a slower beat or no change.

All these results suggest that the cortical secretion is a necessity in the preservation of vagal tone. In addition, it has been suggested that, via the vagus, the secretion acts upon the pancreas and plays an important part in carbohydrate metabolism. The evidence for this is that hyperglycæmia does not result from removal of the pancreas if the suprarenal cortex is removed at the same time.

Viale sums up the results of his experiments as follows :—

1. Loss of plasma from the blood in cortical deficiency.
2. Alteration in the lipoid balance with diminution of choline, disappearance of lecithinase and augmentation of lecithin after extirpation.
3. Formation of choline and lipoids in the cortex.
4. Diminution of lactacidogen in the muscles and the presence of permanent glycogen.
5. The importance of the cortex in carbohydrate metabolism.

He interprets these results as follows : That the suprarenal cortex regulates blood viscosity, the metabolism of muscles and the tonus of the vagus nerve, and, in addition, secretes choline and lecithinase. Presumably all these functions are secondary to the formation of choline.

In this way we must look upon the suprarenal gland as a complex organ secreting antagonistic hormones—adrenaline in the medulla and choline

in the cortex. One raises and the other lowers arterial pressure; one is sympathicotonic, the other vagotonic. In this way one organ can control the animal by augmenting or reducing bodily functions according to the exigencies of the moment.

Such a theory, although at present it has many objections and many opponents, cannot help but be attractive, inasmuch as it does explain, to some extent, the anatomy of the gland.

Fortunately, in 1930 Swingle and Pfeffner, and about the same time Hartmann and Brownell, published details of a simple lipoid extract of suprarenal cortex which proved to be the elixir of life to adrenalectomised cats and kept them alive indefinitely. It is of clinical importance, because it has been used to alleviate the symptoms of Addison's disease, although continuous administration is necessary.

The tremendous impetus towards a better understanding of the suprarenal gland that the preparation of the active principle has achieved has, so far, had little time to be very fruitful. However, the following results have so far been obtained after injection in normal cats :—

1. Rise in CO_2 capacity and blood sugar.

2. The non-protein nitrogen value is brought to a normal figure if it were previously either high or low.

3. That it increases the contractility of a fatigued frog's muscle.

I have given a rough sketch of the chief physiological changes that are thought to occur in cortical insufficiency. The suprarenal cortex, however, has many subtleties besides. But if insufficiency is poorly understood, the physiology underlying the amazing outward and natural signs, of cortical hyperplasia within, are not understood at all.

The relation of the suprarenal to the other ductless glands also is exceedingly obscure. Extirpation of the thyroid in cortical insufficiency does prolong life, but this is probably due to the reduced metabolism that ensues on the operation. Cortical insufficiency will also cause enlargement of the thymus or regeneration of the highly involuted organ. The explanation of this action is entirely unknown, although it has always been observed as a concomitant of Addison's disease.

Considerable work has been done recently on the influence of the cortex on the gonads, but from the great number of experimental findings it is difficult to suggest any simple relationship between the glands.

It has been shown, using histological methods, that a definite sex difference may be observed in the cortex. Deansley describes a zone in the cortex of the mouse which in males disappears at the age of five weeks. In the female it persists until some time before the menopause, although the exact time of its degeneration is the subject of dispute. That this zone is related to the gonads is shown by the fact that castration results in its regeneration in the male, so that the cortex comes to resemble the cortex of a normal female. It is not, however, connected with the œstrous cycle since it disappears at the first pregnancy and is not then regenerated.

It has been found also that pregnant dogs on whom the operation of adrenalectomy has been performed survive longer than similarly treated non-pregnant animals. It has been suggested, on these grounds, that the corpus luteum may, at least temporarily, take on the functions of the suprarenal. Some histologists maintain, in addition, that they are not unlike in structure, but, as usual, there is much disagreement about this.

Hypertrophy of the gland results, in the male, in precocious sexual maturity (the " Infant Hercules " type in children), and, in the female, in pseudohermaphroditism.

This relationship of the suprarenal capsule to the sex organs is of interest because the functions of metabolism and of reproduction are fundamentally opposed, and it seems strange that one organ should be able to modify both to such a striking extent.

To judge from the amount of literature dealing with the suprarenal gland that has been produced in recent years, physiologists seem to show as much enthusiasm for discovering the secret of the gland as they do ingenuity in their theories and experiments. But even to-day I think that Montesquieu's conclusion to his report three hundred years ago is not without its significance in these times of careful experimental work and the microscope. " Luck," he says, " perhaps one day will succeed where all this effort has failed." Nevertheless, we must not forget " that all these attempts are rather a proof of the obscurity of the subject than of the sterility of those who have written of it."

With the isolation of the active principle of the cortex—" cortin " it is called—a new road has been opened to the study of the gland. The theories I have outlined are already being disproved or seriously doubted. But we must remember that it is the privilege of the physiologist to change his mind.

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Some Points in the Prophylactic Treatment of Pyorrhœa

By Mr. C. W. Shuttleworth

MR. CHAIRMAN and GENTLEMEN,—As in the case of dental caries, the prophylactic treatment of pyorrhœa, or for that matter any other disease, depends upon its ætiology, in order to make clear upon what lines the treatment shall proceed.

Pyorrhœa has been the subject of much careless and unscientific discussion. Many theories have been formulated regarding its ætiology, but none so far have satisfactorily explained the cause of the disease in such a manner as to gain universal acceptance.

Alexieff states that 350 theories have been brought forward. This shows the amount of thought that has been applied to the subject. The word " thought " in the last sentence was used advisedly, as it appears to the writer that not enough laboratory and clinical work, testing these theories, has been carried out. These investigations appear to have been hampered primarily by the lack of official stimulus in the shape of research of any magnitude and, secondarily, by the complexity of the subject.

When volumes of the current dental journals are examined, an enormous number of articles on the subject of pyorrhœa will be found. A great number of these are merely reports of addresses given to dental societies in which one or more theories are collected together and re-edited. These are of no practical value, and only succeed in stimulating a little thought on the subject.

Unfortunately, this paper falls under this heading, and the only thing to be hoped for is that it will fulfil its purpose.

Pyorrhœa is defined in " The Science and Practice of Dental Surgery " as " a disease characterised by a progressive inflammation commencing at the gum margin and invading the periodontal membrane. Concurrently with the destruction of the periodontal membrane there is a rarefaction of the alveolar bone. As the supporting tissues become destroyed, the teeth gradually become looser. At some stage of the disease there is usually, although not invariably, a discharge of pus from the pockets formed by the destruction of the periodontal membrane. Secondary charges of a necrotic or regressive character affect the cementum, dentine and pulp. In some cases the bone-changes are of a progressive, rarefactive type throughout, but in other cases rarefaction may be replaced by sclerosis or production of bone, with fibrosis of the gum, so that the teeth remain firmly implanted until a relatively late stage."

" This disease is essentially local in character, though general factors may exert a predisposing influence."

The theories as to the cause of pyorrhœa can be divided into three groups. These are :—

1. All pyorrhœa is caused primarily by local factors.

2. There are two types of pyorrhœa, one of constitutional and one of local origin.

3. All pyorrhœa is caused primarily by systemic factors.

The local causes can be quickly run through as they are familiar to everyone—the majority of dental text-books on the subject favouring this view.

The primary local factor is considered to be food stagnation, which may be caused by insufficient space between the teeth to allow them to be self-cleansing, lack of oral hygiene, inefficient mastication, tartar, edges of fillings and crowns, lack of eruption of a tooth, denture clasps, orthodontic appliances and mouth-breathing. This latter causes stagnation areas owing to the lack of natural cleansing by the saliva and lips. Food stagnation causes a lowered resistance and, consequently, the condition is aggravated by infection from the mouth. Some authorities stress atrophy of the alveolus and lowered resistance of the tissues surrounding the tooth, with consequent infection by bacteria.

Another local factor about which much has been written is " traumatic occlussion," by which is meant the fact that teeth that are not in good occlussion have an extra force of mastication thrown upon them, which lowers the resistance of the supporting structures and allows organisms which are normally present in the mouth to infect the surrounding tissues. This theory has not gained much credence—MacMillan, in 1927, said that it is not in accordance with the principles underlying the functional adaption of bone.

Among the local causes is included infection by bacteria, apart from any predisposing local conditions. Some authorities consider that bacterial infection takes place primarily. In this short paper it is to be regretted that the controversial field of the bacteriology of pyorrhœa cannot be entered upon.

With regard to the theories that there are two types of pyorrhœa, one of constitutional and one of local origin, Simonton, an American investigator, recognises two conditions—a non-inflammatory and an inflammatory type. In the first, systemic

factors are of greater consequence than the local conditions. In the second, the inflammatory process dominates and infection is primary.

We now come on to theories in which pyorrhœa is caused primarily by systemic factors: these, while not decrying local factors as the exciting cause, consider systemic factors predispose towards pyorrhœa.

To quote the article in Sir Norman Bennett's new book, which, speaking of general causes, says: "Their chief merit is not so much that they provide a complete explanation of the cause of chronic general periodontitis as a disease of general origin—for they fail to do that—but rather that they reveal the insufficiency of the local factor theory as a satisfactory explanation of all cases of the condition and shatter the somewhat complacent satisfaction in an explanation based on food-stagnation as an all-sufficient cause. That they would replace precision by confusion is not an argument against their validity, for in science there is nothing so deadly to truth as a precise explanation, which satisfies one's sense of logic and yet attains its precision only by selecting such facts as support a particular hypothesis while ignoring others which cannot be fitted into the scheme."

In consequence of this extract, it is proposed to give a theory of the causation of pyorrhœa which, although it has many critics and detractors, may be of interest to those who are only familiar with the local causes. This theory shows that the predisposing cause only is systemic, while the exciting cause is purely local.

It will be remembered from the paper "On the Prophylactic Treatment of Dental Caries" that it was suggested that the predisposing cause of dental caries is a calcium starvation brought about by a loss of balance between the acid and base end products of metabolism, causing a chronic acidosis which is really an exhaustion of the alkali reserve of the tissues.

With regard to pyorrhœa Broderick believes that a chronic alkalosis, with a consequent excess of calcium in the blood, produces this disease.

Now calcium retention and utilisation depend upon four factors; they are:—

1. The acid-base equilibrium of the body.
2. The endocrine glands.
3. Vitamin D.
4. The ionic equilibrium of the body.

These factors must be discussed in some detail as they have an important bearing upon alkalosis. By the acid-base equilibrium of the body is meant the compensating mechanism whereby the reaction of the blood is kept slightly on the alkaline side of neutrality, that is, the blood has an hydrogen ion concentration of 7.4.

Before going any further it is best to see how the acid-base equilibrium works. The reaction of the blood is kept constant by a complicated system of chemical interaction known as "buffering." This buffering is accomplished primarily by sodium bicarbonate in the blood plasma. A considerable amount of fixed acid can be added to the blood without producing more than a trivial change in its reaction. The reason for this is that the acid reacts with the sodium bicarbonate to form a neutral salt, setting free CO_2, which forms H_2CO_3, which undergoes so little ionic dissociation that the H ion concentration of the blood increases only very slightly. Hence the presence of sodium bicarbonate in the plasma helps to prevent the reaction of the blood from altering to such an extent as to become injurious to the tissues. The excess CO_2 set free is excreted by the lungs. It is the presence of this gas in solution in the blood that regulates the activity of the lungs in excreting it from the body by stimulating the respiratory centre in the medulla. Hence a diet containing an excess of acid-ash producing food will increase the amount of CO_2 excreted by the lungs.

It can now be seen that one of the ways in which the body removes excess acid is by way of the respiration; now the rapidity and depth of the respiration is regulated by the respiratory centre in the medulla, and, practically speaking, the amount of oxygen that will be inhaled and the amount of CO_2 that will be eliminated is under the control of this centre. The activity of this respiratory centre is regulated by the H ion concentration of the blood, and should this rise even to an infinitesimal extent, the sensitiveness of the centre is so great that the respiration will be immediately augmented and an increased amount of CO_2 will be excreted.

If on the other hand there is a tendency towards increased alkalinity, stimulation is lessened and the respiration is slowed, thus automatically a greater amount of CO_2 is retained. In this way equilibrium is quickly regained and excessive alkali eliminated.

It has been already pointed out that the normal reaction of the blood depends upon the concentration of hydrogen ions present. Now the reaction of a solution containing both alkaline bicarbonate and carbonic acid depends upon the ratio of free CO_2 to combined CO_2; it follows, then, that in order that the reaction of the blood, which is such a solution, shall remain constant, this ratio must remain unchanged. The proportion of acid to base necessary for the blood to remain of correct reaction is known, and is represented by the ratio of 1 : 20, that is, one part of carbonic acid to 20 parts of alkaline bicarbonate.

The formula, therefore, is, if B represents the total bases, as sodium is not the only base to be used—potassium, calcium and magnesium also being present :—

$$\frac{H_2CO_3}{B\ HCO_2} = \frac{1}{20}$$

From the foregoing it will be seen that lessening the CO_2 content of the blood will increase the alkalinity of it, the same thing occurring if the base bicarbonate is increased.

Overbreathing causes an alkalosis, which may be either voluntary or involuntary, the latter taking place as the result of oxygen want in the tissues either as the result of a diminution in this gas in the atmosphere breathed or in some difficulty in the power of the blood to carry oxygen to the tissues.

Now the ordinary response to an anoxæmia will be an increase in the amount of air inspired per minute to procure a sufficiency of oxygen, but an increased respiration will be followed by an increase also in the amount of CO_2 expired per minute. As CO_2 is an acid the consequence of this will be that, in addition to overcoming to some extent the oxygen want, there will result a washing out from the blood of an excess of acid, which will upset the H_2CO_3 : B HCO_3 ratio.

The compensatory mechanism will be immediately stimulated by the alteration in the pH of the blood thus brought about and produce a diminution in the elimination of acid by the lungs and the kidneys.

The increased hydrogen ion concentration affecting the respiratory centre will diminish respiration to keep CO_2 in the blood. The net result of these two opposite states, an increased desire for oxygen increasing the respiration and a diminished activity of the centre slowing that function, will depend on the circumstances. A mean will probably be struck giving a slight diminution of the O_2 to the tissues and a slightly increased respiration rate resulting in a slight increase in CO_2 excretion, the alkalosis due to the latter being more or less compensated by the liver and kidney functions with the patient on the verge of an alkalæmia.

Perfect compensation, however, cannot be attained so long as the oxygen want continues. Broderick suggests that a condition of mild anoxæmia is not an uncommon accompaniment of the circumstances of middle life, the environment under which a large part of the working hours are spent is such that a free circulation of oxygen is not available in the stuffy and ill-ventilated rooms and offices in which so many middle-aged persons spend their lives, a slight reduction of the oxygen supply is more than probable, although this diminution is not tremendous enough to give rise to any serious symptoms. This anoxæmia, mild in degree though it may be, when complicated by a lack of reasonable exercise with its production of acid, may well lead to an alkalosis, which will necessitate an increased elimination of base in order to preserve the normal hydrogen ion concentration of the blood.

Another factor that upsets the acid-base equilibrium of the blood and brings about an alkalosis is as follows :—

The hydrochloric acid necessary for gastric digestion is formed in the body from foodstuffs through the agency of the acid phosphates, and it is obvious that when the acids pass into the stomach the corresponding alkali is left behind in the tissues and tends to increase the alkalinity of the blood. If for any reason the formation of the corresponding alkaline duodenal secretion is prevented and the acid utilised in the digestion of food is not reabsorbed as such, the alkaline tide will persist or be continued for a longer period than normal, a physiological process passing into a pathological one and a definite alkalosis results, which is compensated with difficulty owing to its quantitative nature. This condition can occur at any age.

In childhood and early youth the diet is most important, and it is surprising the small changes that will upset the acid-base equilibrium of the blood.

For instance, in children a very prolonged interval between meals causes a minor degree of carbohydrate deficiency, as it is a recognised fact that children have not the same capacity for storing sugar as have adults. Now the metabolism of fat is not completed unless carbohydrate is present, so this deficiency is the cause of the formation of abnormal acids, owing to the incomplete metabolism of fat.

These things only occur in young children, as the diet of the adult is more than ample for his needs, both in food value and in vitamins ; consequently none of these upsets that occur during the anabolic period of life appear.

From the preceding remarks on the acid basis equilibrium of the blood, it will be seen that there is a tendency to an alkalosis in middle age, with a consequent retention of calcium. We will return to this aspect of the subject later.

We now come to the function of the endocrine glands in the assimilation and retention of calcium. Since the discovery of the parathyroid glands and the isolation of their active principle by Collip, these glands are often considered to be the sole regulators of calcium metabolism. It must not be forgotten that metabolism, as a whole, as well

as calcium metabolism, is regulated by an equilibrium between all the members of the ductless gland chain. Briefly, the relationship can be summarised as follows in tabular form :—

Parathyroids (control ionisation of calcium).

A. *Anabolic Group* (promote retention of calcium)—
- Anterior lobe of pituitary.
- Thymus.
- Gonads.
- Suprarenal cortex.

B. *Catabolic Group* (increase excretion of calcium)—
- Thyroid.
- Adrenal medulla.
- Posterior lobe of the pituitary.

Langdon Brown points out that the action of the thyroid, the pituitary and the adrenal medulla, *i.e.*, the catabolic group, differs in youth before the advent of puberty from that which they assume in later life. In the early years they are essentially anabolic glands preserving and building up material for growth, and they retain this action so long as what he terms the retarding glands, the thymus and pineal, are functioning sufficiently. After puberty, with the advent of the lessening of the retarding glands, these take over a catabolic activity as their normal functions.

After the body is fully grown, the glands that promote growth slow down and the parathyroid, which controls the calcium, slows down as well, so that there is now, in middle life, an excess of calcium that is not now required.

The effect of Vitamin D on the assimilation and retention of calcium can be dealt with briefly, as in the adult there is no doubt the amount of Vitamin D the body receives is ample, with the consequence that more calcium than is required is taken up by the intestine. Vitamin D also corrects any improper balance between calcium and phosphorus intake.

Another factor influencing the retention and utilisation of calcium is the ionic equilibrium of the body, that is, the relation of the calcium ion to the potassium ion and to a less extent the ratio of calcium and magnesium to sodium and potassium. But, as mentioned in the paragraph on Vitamin D, the diet in middle age is usually ample for the wants of the body, and, consequently, there will be no lack of these essential bases.

Pyorrhœa is essentially a disease of middle and later life. It starts at a time when the need and the desire for lime salts are not great, when the individual has settled down to a more or less sedentary life. This is the time of life when calcium assimilation is good and the risks of calcium starvation are removed ; a time, in fact, when the tendency is towards calcium saturation, and the habits of civilised life all tend in that direction—too much food is eaten and too little exercise taken.

Now this state of calcium saturation will tend to produce a condition of threatened alkalosis, as the opposite condition did a threatened acidosis, with an increase in the alkali reserves of the tissues. The preceding paragraph is merely a corollary of all that has been mentioned regarding the retention and utilisation of calcium.

Now should be considered the saliva and the effect of a calcium saturation on it.

Starr, of the University of Pennsylvania, did a lot of work on the hydrogen ion concentration of the saliva and found that this was due primarily to the H_2CO_3 : B HCO_3 ratio of the secretion. As the result of the simultaneous determination of the salivary pH and the CO_2 content of the alveolar air, he found there existed a definite correlation between them. If the saliva was alkaline, the less the amount of CO_2 in the alveolar air, or conversely if it was acid—a greater amount of CO_2 was present.

It will be remembered from what has been said previously that the amount of CO_2 in the alveolar air depended upon the acid-base equilibrium of the blood, and that any tendency for a change towards acidosis or alkalosis in the blood was immediately shown by the amount of CO_2 in the alveolar air.

Now Starr stresses the point that the pH of the saliva parallels the alveolar CO_2 and H_2CO_3 of the blood rather than the pH of the blood at a given time, thereby implying that it is the compensation to a change of pH rather than the change itself that is the ætiological factor in the determination of the salivary reaction.

Howe says that the composition of the saliva is affected by the kind and amount of food taken, by the habits and the amount of exercise. That is, it mirrors the reactions of the body to the life an individual leads. But he also says that, however much the saliva changes, it always maintains a definite relation between its constituents, *i.e.*, the ratio of sodium to potassium, calcium to magnesium and albumen to globulin always remains the same. From this it will be seen that alterations in the acid-base equilibrium of the blood, which in compensating will alter the H_2CO_3 : B H_2CO_3 ratio of the blood, also alters the saliva, thus bearing out Starr's findings. Bunzell carried out a series of experiments on the reactions of the saliva at different ages, and it is seen that in the decade 40-50 the majority have a salivary pH which is well over towards the alkaline side, with a small number on the acid side. From these figures Broderick points out

that this is clinically the period of life during which pyorrhœa is rampant and caries almost non-existent.

McIntosh, Warwick James and Barlow state that the "saliva appears to be intimately connected with the occurrence of caries, being more acid in those susceptible to the condition than in those immune. In appears that in adults the saliva, in cases of caries, tends to be rather more acid than in cases of pyorrhœa." Weston Price, in his "Dental Infections," states that the saliva is more alkaline and has a higher calcium content in active pyorrhœa than in caries.

Broderick also found that the saliva of patients suffering from pyorrhœa is more alkaline than normal when tested by the hydrogen ion method.

It is not a new idea that dental caries and pyorrhœa are antagonistic conditions. Pickerill says "that pyorrhœa may be regarded as the pathological antithesis of caries." Prinz agrees with this statement. Raper says, "after 30 years there is a growing immunity to dental caries and an increasing susceptibility to pyorrhœa," and Bibby adds weight to the argument by pointing out that "it is significant that those individuals who enjoy relative immunity from dental caries in a great many cases ultimately suffer from diseases of the bone encompassing the teeth."

It will be remembered from the last paper that caries was due to a calcium starvation. From all the evidence that has been brought forward in this paper it will be seen, to use Broderick's own words, that "endocrine instability, predisposed to by age, hereditary tendencies, bad personal hygienic circumstances, *e.g.*, insufficient exercise and over-feeding; excited by toxæmias and general infections of all types, upsets the balance of calcium metabolism in the direction of lime saturation, bringing about at the same time a chronic alkalosis, and in this was increasing the calcium content of the saliva."

In this definition it will be noticed that hereditary tendencies are mentioned. By this is meant that certain individuals who, through constitutional defects, possess a tendency to a change from the normal in one direction or the other.

Ellis has classified these individuals into three groups: normal, acid and sub-acid. The way in which this grouping works is shown by taking the acid group as an example. In this group there will be a tendency to dental caries in youth, but the reasons for this will bring about in the advancing years a balance more easily maintained and a power to withstand those circumstances which are productive of pyorrhœa.

When calcium is present in the blood in a hypersaturated solution, it is kept in this state by the carbon dioxide and the colloid content. Any diminution of the former will cause calcium to be deposited.

Now a condition of alkalosis can result from either an increase in the alkali or a diminution in the acid content of the blood, and that in either case one of the methods of compensation was an alteration in the respiration rate regulating the amount of CO_2 that was expelled from or kept in the blood.

It was shown as the result of an anoxæmia, an alkalosis was produced as the result of an increased respiration removing an excessive amount of CO_2 from the blood. In these cases, therefore, the calcium content of the blood must be diminished, because the blood becomes for that CO_2 pressure over-saturated.

The circumstances, then, in the compensation of an alkalosis are favourable for the deposition of calcium salts around the teeth, and this, Broderick believes, is the way sub-gingival tartar is deposited.

Prinz believes that seruminal or sub-gingival tartar is laid down directly by the saliva.

But in any case the result of a compensation of an alkalosis will produce a state of things favourable for deposition in either of these ways. Having got a deposit of sub-gingival tartar, it will irritate what Warwick James and Counsell call the amelo-gingival angle, causing a lowering of resistance, so that infection from the mouth is only a matter of time.

The bacteriology, therefore, of pyorrhœa from an ætiological point of view becomes a matter of secondary importance.

Work by Warwick James and Counsell, described in the *British Dental Journal* for 1927, bears out the view that the primary lesion is brought about by deposits on the tooth. They also state that ordinary staining methods have failed to show the presence of organisms in the tissues, although they are readily demonstrated in an acute case. The presence of pus is unusual, and, when present, is due to secondary infection.

From the foregoing it will be seen that a faulty edge to a filling will cause pyorrhœa in exactly the same way as the seruminal tartar.

This theory that pyorrhœa has a general cause explains the immunity of some people who have dirty mouths to the disease; while others who have no particular predisposing local conditions loose their teeth at an early age owing to their falling victims to its ravages.

It is now seen that, in order to combat pyorrhœa, it is not the mouth that should be watched primarily, but rather the reaction of the saliva—any marked deviation to an alkaline reaction should be

the signal for action in an attempt to alter the acid-base equilibrium of the blood, in order to restore the saliva to its normal hydrogen ion concentration. This can be done along the lines of ordinary hygienic reconstruction of daily life. Exercise should be increased to produce a normal supply of acid formation and the diet should be carefully considered in order to augment acid production.

With regard to the exercise, this should be a simple matter, providing the patient suffers from no chronic disability such as heart or lung trouble.

In an ordinary mixed diet, any slight increase in food with acid or alkaline end products is easily dealt with through the buffering agencies of the blood, the acid or alkali being taken up without any perceptible change in the blood reaction. From this it will be seen that a diet should be built up which is not of a too acid nature to cause an acute acidosis, but rather to have one in which the acid changes are not excessive, and which, by continuing in action for a long time, would gradually rob the body of alkali in an attempt at neutralisation. This type of diet in a normal individual would result in a chronic acidosis, but in the person suffering from an alkalosis would produce a happy mean.

A meat diet, for instance, will produce as end products more fixed acid than that of a vegetable diet.

Meat consists largely of proteins containing sulphur and phosphorus, which break down in metabolism into sulphuric and phosphoric acids, while vegetables contain less protein and relative abundance of the salts of organic acids, which break up in the body so as to yield carbonates of these acids.

The ratio of meat to vegetables is not the only way in which the balance of the diet may be upset. Cereals also produce an acidosis, while fruit produces an alkalosis.

Hence a diet that has a preponderance of meat and cereals is the ideal thing to treat pyorrhœa. Now as pyorrhœa occurs usually in middle age when there is a tendency to an alkalosis, the prophylactic treatment should be along these lines —plenty of exercise and an over-balance of meat and cereals in the diet.

Should it be found for any reason that, either from some constitutional defect which is beyond our power to alter or to circumstances in which the patient is compelled to live, the conditions tending to an acidosis are not attainable, it may be necessary to consider the addition of an abnormal acid. This latter treatment is definitely contra-indicated unless a state of alkalosis actually exists.

The drug used by Broderick is ammonium chloride, which works in the following manner—the ammonia ion is eliminated from the body as urea and the chlorine ion passes into the blood. Ammonium chloride should be given in 2-grain doses, that is about as much as will lie on a sixpence, each morning before breakfast. This amount should be increased until the pH is normal. It is advisable to see the patient periodically in order that the saliva may be tested and that any tartar that may have been formed can be removed. The patient should also be warned that as soon as he is unwell the ammonium chloride should be discontinued, as an acute illness may produce an acidosis, which, with the extra acid being administered, would cause serious results.

While, from the consideration of the ætiology of pyorrhœa that has been brought forward, it will be seen that the prophylactic treatment should be principally of a systemic character, the local prophylactic treatment should not be forgotten. While every marginal gingivitis is not a precursor of pyorrhœa, it is as well to treat this symptom with suspicion; any formation of sub-gingival tartar should, of course, be the sign for intensive work with a scaler—as has been shown, tartar is the exciting cause of pyorrhœa.

Small, fine scalers should be used, to prevent the gingival trough being damaged unnecessarily and in order that the tartar may be felt easily. The scaling should be extended over several visits, so that all of it may be removed, one's judgment becoming rather biased as to the perfection of a " scale " if too much is attempted at one visit.

Such things as overhanging fillings, carious cavities and grossly irregular teeth, etc., should also be treated, in order to prevent any marginal gingivitis which might, with the help of the sub-gingival tartar, develop into pyorrhœa.

This, gentlemen, must conclude a paper which might easily be expanded to a much greater length, but if it has widened your conception of the possible ætiological factors of pyorrhœa it will have served its purpose.

Guy's Hospital Gazette

The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

The Zondek-Ascheim Reaction and the Early Diagnosis of Pregnancy

By Mr. P. M. F. Bishop

AT the beginning of the century Fröhlich and Cushing drew attention to the relation of the pituitary body to the ovarian cycle, but it is only during the last eight years, mainly as the result of the work of Evans and Smith, that any light of diagnostic or prognostic value has been shed on the subject. By means of grafting experiments with anterior lobe transplants, and an investigation of the effects of anterior hypophysectomy in animals, the control of the ovarian activity by the anterior pituitary lobe has been established.

Pursuing this train of thought, it seemed possible that this regulation of the ovary by the anterior lobe might be reciprocal, and arguing on the assumption that the anterior lobe, behaving as an endocrine organ, secretes into the blood stream an active principle or hormone of a definite chemical nature, which on reaching the ovary stimulates it to activity, various workers set out first to isolate this active principle and then to determine whether it varies quantitatively according to the different phases of ovarian activity.

Attempts to obtain a pure extract of the active principle in order to elucidate its precise chemical formula and nature, however, proved unavailing. This meant that the hormone could not be standardised by simply weighing the dry powdered extract. Thus the method of physiological standardisation or bio-assay proved to be the only available means of estimating the potency of a sample. The mouse was, therefore, chosen as a convenient experimental animal, and it was found by Zondek and Ascheim in 1927 that the implantation of male or female anterior pituitary into the immature mouse brings about precocious oestrus, associated with ripening of Graafian follicles, and leading to the production of corpora lutea. The active principle to which Zondek gave the name "prolan," however, was found not to be present in sufficient concentration in the blood of the normal male or female to produce similar changes in the immature mouse. It seemed conceivable, nevertheless, that the anterior lobe of the pituitary might have some sort of influence on the maintenance of pregnancy, either by inhibiting the onset of ovulation during pregnancy or by preserving the integrity of the corpus luteum of pregnancy.

Working along these lines, Zondek and Ascheim investigated the effect of injecting urine obtained from pregnant women into the immature mouse, and found that such a procedure produced the same changes in the ovary as were obtained by the implantation of anterior pituitary grafts. The significance of this discovery is, of course, immediately obvious. The anterior pituitary hormone is secreted in such excess during pregnancy that it is found to be present in sufficient concentration in the urine of the pregnant animal or woman to bring on precocious ovulation when injected into mice which have not yet reached puberty, whereas urine from males or from non-gravid females, containing little or none of the anterior pituitary principle, will have no effect on the ovaries of the immature mouse. A further point of even greater clinical significance is the fact that prolan is secreted in greatest concentration during the early months of pregnancy, tending to fall off as full term approaches.

Thus, as the result of Zondek and Ascheim's work, a reliable clinical diagnostic test for early pregnancy has been evolved.

Zondek and Ascheim's original technique was as follows: Five immature mice, three to four weeks old, are injected with 2 c.c. of urine, divided into six doses administered over a period of three days. The animals are killed on the fifth day. The appearance of the ovaries is characteristic. The test is considered to be positive if one or more of the animals shows any one of the following ovarian changes:—

1. Normal corpora lutea.

2. Corpora lutea atretica. In this case the primary change is a swelling of the follicular epithelium, followed by atrophy of the ovum itself. The cavity is gradually closed by the hypertrophy of the epithelium until the structure becomes a solid mass of proliferated follicular cells.

3. Corpora hæmorrhagica or *Blutpunkte*. This is the most characteristic change, and consists of hyperæmic follicles which have become cystic. They are not corpora lutea, but merely ripening Graafian follicles into which a hæmorrhage has occurred. These stand out on the surface of the ovary, and may be immediately recognised macroscopically by their large size and the bright colour

of the blood they contain, denoting the recent occurrence of a hæmorrhage.

None of these changes are to be found normally in the ovary of the mouse before puberty occurs, so that their appearance as the result of the injection of the urine is conclusive evidence of pregnancy in the patient from whom the urine was collected.

With regard to the reliability of the test, the percentage error over a large series of cases was found to be between 1 and 2.

The only disadvantage of the test was, of course, the difficulty of obtaining an adequate supply of immature female mice, and it was on this account that the technique was later modified by Friedman in 1929 and by Adéle Bronhar in 1931. Instead of employing mice as test animals they suggested the use of rabbits, and they found, as the result of their experience of a large series of cases with the modified technique, that they obtained results which were only slightly less reliable than those obtained by the use of the original mouse technique.

The procedure, therefore, generally employed to-day, at any rate in this hospital, is as follows. A specimen—preferably a morning specimen—of the patient's urine is collected. It should have been passed not more than 24 hours before it is injected into the rabbit. A young adult doe rabbit which has been kept apart from males for at least two weeks is selected. About 10 c.c. of urine is injected into the marginal vein of the rabbit's ear; 24-36 hours later the rabbit is killed and the ovaries examined. A microscopical section is prepared in all cases, although it is almost always possible to give an opinion simply on the naked-eye appearance of the ovaries. This modified technique possesses the advantage of extreme simplicity without appreciably affecting the reliability of the test.

Experience has shown that, apart from normal pregnancy, a positive Zondek-Ascheim reaction is also obtained in two other conditions—hydatidiform mole and chorion-epithelioma; indeed, in these conditions prolan appears in the urine in enormously increased concentration as compared with normal pregnancy urine. This fact suggests that the stimulus which causes the excessive activity of the anterior pituitary lobe during pregnancy is derived from the chorionic or placental tissue, an hypothesis which is supported by the fact that the concentration of prolan in the urine rapidly falls after parturition has occurred, so that on the third day of the puerperium a negative Zondek-Ascheim reaction is obtained. This theory may also account for the observation that positive reactions have been reported as early as one to three weeks after conception.

The clinical applications of the test are self-evident. It provides a means of diagnosing pregnancy with certainty at a period far earlier than can be accomplished by any other method. This is of particular value in those cases in which pregnancy is contra-indicated from a medical point of view—for example, in pulmonary tuberculosis. In such cases, where the decision to terminate pregnancy is fully justified, the earlier the operation is performed the less formidable it becomes and the less is the risk to which the patient is exposed. Again, from a purely psychological point of view it is important to be able to allay, in one way or the other, the suspicions of the patient who consults you because she has missed her last period. Frequently a serious condition of unrest and loss of confidence is provoked in a patient who has been told to consult her doctor again in a month as it is as yet too early to express a definite opinion. Again, the fortunately rare occasions on which the abdomen is opened for a supposed ovarian cyst and subsequently rapidly closed in confusion on discovering a normal pregnancy should now become even rarer.

With regard to vesicular mole and chorion-epithelioma, the usual procedure of a secondary curettage a month after evacuating the uterus may now be dispensed with should a Zondek-Ascheim test performed at this later period prove negative. Furthermore, in a suspected case of chorion-epithelioma, the Zondek-Ascheim reaction is a far more delicate test than a diagnostic curettage, for cases are reported in the literature where the uterus has been removed on the strength of a positive Zondek-Ascheim test although a preliminary curettage had failed to confirm the suspicions originally entertained, and in which section of the uterus has revealed small intra-mural chorion-epitheliomata which had been out of reach of the curette.

Finally, the test may be of considerable value in the diagnosis of ruptured ectopic gestation. Owing to the frequent urgency of such cases, the technique is slightly modified. Two rabbits are injected. The first is killed after 12 hours, and, should the ovaries show the characteristic changes, abdominal section is immediately undertaken. Should the result of the test, however, be negative, a further period of 12 hours is allowed to elapse before the second rabbit is killed. Should these ovaries show a positive result, the surgeon should now operate.

The Physical Society

A JOINT meeting with St. Thomas's Physical Society was held in the College Smoking Room on Thursday, February 25th. The meeting was a decided success, as St. Thomas's turned up in force and there was a large attendance of Guy's men. Mr. Plummer, who was in the Chair, had collected some interesting cases, and many lively discussions ensued.

Mr. JONES described the case of a child aged one year with a diaphragmatic hernia. There was a history of regurgitation of food, loss of weight and constipation, and on percussion a hyper-resonant area was found between the angle of the left scapula and the spine. A discussion ensued as to the line of treatment to be followed. Mr. Jones pointed out the dangers of operation in young children. Alternatively, if operation was postponed until a later date, there was the danger of strangulation or ulceration. He asked for advice as to diet.

Mr. Taylor suggested that ulcer formation in diaphragmatic herniæ was not uncommon, and he advised early operation. Mr. Miller was discouraging, and recalled two surgical tragedies. Mr. Rosenberg gave a gloomy prognosis, and suggested that the sooner the surgeon performed the deed, the better for all concerned, except the patient. Further discussion ensued as to whether the hernia should be approached via the abdomen or the thorax. The general opinion appeared to be that abdominal section at a later date was the most hopeful method of treatment.

Mr. POWELL demonstrated a case of thrombo-angitis obliterans. There was a history of pain in the left foot and leg, and lately intermittent claudication had developed, with gangrene of one toe. The patient was being treated with typhoid vaccine, and the lumber sympathetic ganglia had been blocked with a view to their excision at a later date.

A discussion on the treatment of these cases ensued. Mr. Simpson-Smith described the effects of typhoid vaccine and sympathetic ganglionectomy. Many speakers pointed out that amputation was frequently unnecessarily delayed, and cases were recalled where good results had been obtained following amputation. Mr. Northfield stressed the fluctuations which occurred in the course of the disease, making it difficult to judge the effects of treatment.

Mr. Rosenberg pointed out that the disease did not originate primarily in the sympathetic nervous system, but that the exact pathology was a periarteritis and periphlebitis. Mr. McArdle said that it was an internal proliferation. No satisfactory conclusion was arrived at in the ensuing discussion.

Mr. LINDSAY showed a girl, aged 18, who for four months had had a swollen and painful knee. There was a family history of tuberculosis, and the girl herself had suffered from pleural effusion. An X-ray of the knee suggested tuberculous disease of the bone, and a radiogram of the chest was reported as showing miliary tuberculosis. Having thus drawn a red herring across the trail, he asked for a diagnosis. A St. Thomas's man immediately dismissed the diagnosis of pulmonary disease, and said that the X-rays looked normal. He diagnosed periosteal sarcoma. Mr. Miller was equally emphatic that it was not a sarcoma, and suggested primary tuberculous disease of the knee joint, with secondary staphylococcal infection. Mr. Northfield, however, supported the diagnosis of sarcoma, and suggested biopsy. Mr. Brock pointed out the evil effects of clinical examination on an early sarcoma. It was finally admitted that the X-ray of the chest was by the Surgical X-ray Department, and the discussion closed with the probable diagnosis of sarcoma.

Mr. RUSHBROOK told the story of a middle-aged man who for some years had complained of blueness of the hands and face, epistaxis, breathlessness and a nasal discharge. His hæmoglobin was 118 per cent. and a blood count showed 6,600,000 red cells, 6,000 white, and a colour index of .9. He diagnosed polycythæmia vera rubra.

Mr. Miller, however, did not agree. He pointed out that the blood count was not typical of polycythæmia vera, and he said that he had distinctly heard a systolic murmur over the sternum. He diagnosed congenital heart disease, and suggested that an electro-cardiogram might be useful. Another diagnosis that was exploited was enterocyanosis, but we hardly think that this was meant seriously. The majority were inclined to agree with Mr. Rushbrook.

Mr. MCARDLE described the case of a middle-aged man who, following some ulceration of the cheeks, fauces and tongue, had developed an indurated and generalised swelling of that organ. Apart from this complaint, the man's general

condition was satisfactory. The diagnosis was far from certain, and he asked for assistance.

St. Thomas's immediately suggested glanders. Mr. Taylor thought that the fact that the man showed no constitutional symptoms ruled this out. He put forward Vincent's angina. Mr. Crowther-Smith was of the opinion that Hodgkin's disease should be considered. Other diagnoses of actinomycosis, tuberculosis and malignant disease were discussed, but no satisfactory conclusion was arrived at. Mr. Brock suggested that the microscopical examination of an excised gland might shed some light on the problem.

Mr. ELVIN showed a case of Addison's disease. There was the usual history of lassitude, headache, loss of weight, diarrhœa, pigmentation, etc., and the blood pressure was 100 mm. Hg. systolic, 85 mm. diastolic. The ensuing discussion ranged around the subject of treatment. The patient in question has been given an expensive adrenal extract, named "Cortin," from which she had apparently derived some benefit. When, however, the price of this article was mentioned, the meeting agreed that prolonged treatment with this preparation would be quite impossible in hospital practice.

Mr. STAMM asked for a diagnosis in the case of a lady, aged 41, with a previous history of malaria, who now complained of pain in the left loin, frequency and polyuria. Examination revealed a spleen enlarged to the umbilicus, and a liver 2 inches below the costal margin. The Wassermann reaction, moreover, was ++, and the phenacetin excretion test normal. The question that arose was whether the spleen was due to malaria or syphilis. He thought that the condition was malarial. Mr. Miller, however, was unable to agree. Whilst considering the possibility of kala-azar, which, he assured the meeting, does give an enlarged spleen, he made a diagnosis of syphilis. St. Thomas's pointed out that there must be hundreds of spleens like that in malarial countries. Mr. Taylor thought that the pathology was amyloid disease from syphilitic infection of the kidneys. Mr. Brock inquired if anyone had ever seen a spleen that size in amyloid disease. Several had. The discussion closed with the majority favouring a diagnosis of malaria.

Correspondence

Copy of a Letter to the College Catering Committee

SIRS,—During the past few months we have been concerned at the unsatisfactory state of affairs in the College Smoking Room. The "Spit," as it is familiarly called, has been much better patronised of late. This being so, we feel that the service and menu might undergo some revision. It is between noon and 2 o'clock that the inadequacy of the staff is most noticeable, and we would point out that the following remarks refer chiefly to that time of day.

When we first joined the Clubs' Union we were told that the "Spit" was run with a view to providing a cheap and speedy lunch for members. As matters stand, one goes into the basement and finds oneself at the end of a long queue which wearily awaits the pleasure of a single cashier who, slowly works out the price of a plate of food on the cash register. Surely, one unskilled employee is not enough to deal with the 200 people who use the "Spit" during the lunch hour? We suggest that during this period two quick and competent cashiers should be installed. Room for a second could be made by removal of the superstructure which at present supports countless boxes of chocolate.

Having obtained our luncheon, we look for a suitable place to eat it. We balance the plate on the corner of a table where banana skins and cigarette ends float on a pool of spilt tea. This raises another point; cannot some attempt be made to control the hooligan who insists on writing his name in salt on the table, or who regards it as an altar where he can burn the remains of a cigarette carton? We do not suggest that notices requesting moderately decent behaviour will stop this nuisance, but it is possible that they might arouse hitherto unsuspected table manners in some of the patrons. Further, the garbage left by these undesirables has to be cleared up by a single waitress, who works with considerable vigour, and, strangely enough, is quite cheerful. This girl has to collect all the knives and plates, in addition to sweeping up the rubbish. Would it not be possible to arrange for a second waitress to lighten her heavy burden?

The available seating accommodation might be increased by the prohibition of games such as chess and dominoes between 12 and 2 o'clock. There is little enough room anyway, but the tables are frequently obstructed, even during the busy period, by devotees who think more of the Cunningham gambit than of the convenience of their hungry fellows.

On first entering the hospital we were given to understand that the Catering Company was run for the benefit of penurious students, the minimum of profit being made. Although this beneficent principle is doubtless carried out to the full, we feel that there are still commodities from which a reduction could be made without loss to the company. For instance, 2½d. is exorbitant for a small cup of coffee which we could procure at a coffee-stall for 2*d*. The charge of 2*d*. for a tomato and 2*d*. for a banana we also consider excessive. Bread is another article which could probably be reduced in price. We have had, at the present, insufficient time to inquire the wholesale prices of foodstuffs, but we feel sure that many other of the goods offered for sale could be added to the above list. So that we may be certain that the price of our lunch has not been miscalculated, we suggest that the several items be marked in plain figures.

We observe that there are at least 18 varieties of chocolate for sale, and feel that the substitution of some wholesome dish, such as welsh rarebit or sardine on toast, would be much appreciated. A recent innovation—ham and sausage sandwiches—is very palatable and quite a popular item.

The provision of a hot plate, where sausages, bacon, chipped potatoes and the inimitable fish cake (one of the really appetising confections of the "Spit") could be cooked, could be achieved at small cost and would obviate the shouting up and down the lift which wastes so much time.

We hope that you will deem these suggestions worthy of your notice, and that some steps may be taken to ameliorate the lot of the "Spit" gastronome. We should also like to point out that still further improvements suggest themselves to us, and that we should be pleased to bring them to your notice.

Yours, etc.,
G. THURSTON,
G. V. DOHERTY,
S. A. W. RUSHBROOKE,
J. W. PIPER.

Guy's Hospital,
S.E.1.

Sport

Rugby

Guy's v. Old Millhillians

VISITING Headstone Lane on Saturday, February 20th, Guy's exhibited capital form, and in the end won decisively by 6 placed goals (30 points) to a try (3 points).

Fortunately, the Hospital were in the happy position of being able to field the identical side which overcame Bart.'s, and the "Old Boys" had a very strong team which included three Internationals in Sobey, Howard and Lowther, in addition to Carris, the Cambridge Blue.

One of the outstanding features of this match was the splendid form shown by R. A. P. Hogbin, who not only took a big part in every attack, but scored two fine tries and was successful with all the place-kicks entrusted to him.

Another forward who did very well was D. M. Leeming, who, apart from the hard work he put in in the set scrums, was always prominent in the raids of the forwards and defended splendidly.

The pack, ably led by J. S. Batchelor, gave a capital display throughout, their quick and clean heeling giving the Hospital a decided advantage.

Eustace sent out a splendid service from the base of the scrum in spite of the close attentions of Sobey, who was in excellent form and did several clever things during the course of the game.

There was not a weak link in the back division; their strong running and accuracy of passing was so good, that at times it left the opposing defence standing.

A forward who stood out conspicuously for the Old Boys was C. S. Darke, a former captain of Mill Hill and who came to Guy's last term—a tireless worker and ever ready to snap up the slightest chance. Darke on his form will be a strong candidate for the Hospital pack in the near future.

The ground was in excellent condition when the Old Boys kicked off against a slight but cold wind. Windsor Lewis marked and at once sent the home forwards back with a well-judged kick to touch.

Guy's went all out from the commencement and gradually worked the ball to their opponents' 25. Eventually, two rounds of passing between the threes nearly sent Johnson over, but on each occasion he was pushed into touch near the corner flag.

For a time the play was fairly even, but the Hospital appeared to be the dangerous side whenever they got the ball. Their forwards were now playing exceptionally well—breaking up quickly from every scrum, they carried out several dashing raids, which were repulsed by superb defensive work on the part of the home pack.

Eventually the persistency of the Hospital was rewarded when they scored after a quarter of an hour as the result of a clever opening created by

W. Lewis. Following a five-yards' scrum, the ball was heeled quickly and sent to W. Lewis, who ran inwards and flashed it to Giesen—the latter slipped through the centres and scored a delightful try, which Hogbin converted.

For a few minutes the Old Boys rallied and, following some scrappy play in mid-field, Carris picked up and raced away for the line. Showing a fine turn of speed, he handed off both Johnson and Clegg and crossed for a try, just as he was tackled by Alexander. Carris was a dangerous wing and, aided by his weight, he was able to brush away any opposition, and it was only sheer force of numbers which prevented him from scoring again.

Even play followed until Guy's launched two good attacks before the interval, but nothing resulted, and the teams changed over with the Hospital leading by two points.

At half-time W. R. Lackie, one of the home centres, had to retire from the game with an injury to his head. Handicapped by this loss the Old Boys were unable to hold the Guy's pack, who were irresistible and dominated the scrums and line-out on practically every occasion.

The first score after the breather came as the result of an excellent individual effort by Johnson, who ran across from the left and zigzagged his way through the defence to score a fine try, to which Hogbin added the goal points.

Following heavy pressure in the home 25, several scrums were formed and eventually Hogbin flung himself over the line, with two opponents clinging to him. A few moments later, Hogbin distinguished himself again when, by careful backing up, he accepted a final pass following a movement between the threes and scored an easy try behind the posts ; each of the tries he converted, although the first was a difficult kick from an awkward angle.

Near the end, O'Shea finished off a good round of passing by scoring near the posts, and a little later Ashdown crossed for one of the best tries of the afternoon. After running strongly from mid-field, he lost the ball when tackled on the 25 line, but recovered quickly and, after beating three opponents, he ran in for an excellent try, and Hogbin crowned this fine effort by goaling from near the touch-line.

It was a bright and open game, the football throughout being very keen. The fact that only three penalties were awarded for minor infringements indicates the sporting manner in which the game was played.

Team.—W. B. Clegg ; D. E. Ashdown, J. E. Giesen, P. C. Alexander, A. G. Johnson ; W. H. Lewis, R. J. Eustace ; J. S. Batchelor, J. P. O'Shea, J. Cunard, R. J. Drummond, D. M. Leeming, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Inter-Hospital Cup—Semi-Final
Guy's v. St. George's

AT Richmond, on Thursday, February 25th, Guy's qualified for the Final by defeating St. George's by 2 penalty goals and 2 tries (12 points) to a placed goal (5 points).

At the last moment Guy's made two changes in the team selected owing to injuries to J. S. Batchelor, the vice-captain, who damaged his shoulder against the Old Milhillians, and W. B. Clegg, who was hurt whilst training the day before.

St. George's fielded a powerful side, and their back division was much stronger than that which Guy's had met in the previous round.

The Hospital backs were not so effective as usual, and this was to a great extent due to the excellent marking and tackling of St. George's outsides. The forwards played a splendid game throughout and were generally on top in the set scrums, although in the loose our opponents were very active and held their own.

It was a very open game and both teams did their utmost to open out the game on every occasion. Their efforts resulted in several fine rounds of passing, but undoubtedly the cold wind accounted for a number of passes which were dropped or knocked on.

Guy's kicked off and at once gained a footing in St. George's 25, and for a minute or two stayed there. Following a scrum near the line, the ball was sent swiftly across to Alexander, who cut through and nearly scored, but a superb tackle by S. G. Penny saved the situation. St. George's retaliated with a fine dribble by the forwards, and eventually Jones-Davies found touch in the Guy's half.

Offside against St. George's nearly led to a score by Hogbin, whose difficult kick at goal fell short by inches.

Allen was then conspicuous for St. George's, and, after finding touch near half-way, he made a good run to the Guy's line, but a poor pass to Penny lost a possible chance. At this stage the marking of the centres was so keen that the ball seldom reached the wings, and subsequent play developed into a battle between the forwards.

After Guy's had made one or two attempts to score from penalties for offside, Hogbin succeeded in giving Guy's the lead by kicking a capital goal from near the touch-line.

During the second half, the Guy's pack played splendidly, and, with the outsides displaying a better understanding, the Hospital attacks were dangerous, although, try as they might, they found it extremely difficult to pierce a solid defence.

However, Guy's scored a fine try after Windsor Lewis had cut through and passed to Johnson : although he was practically on the touch-line and

hemmed in, Johnson managed to swerve past the full-back to score cleverly in the corner, but Hogbin missed the goal points.

Guy's continued to have the better of the game until the St. George's forwards broke away from their 25 and dribbled the ball to well inside the Guy's half, and, following good work by R. S. Lewis and W. E. Tucker, T. E. Jones-Davies picked up and ran cleverly between the backs, to score easily behind the posts for Allen to convert.

With one point separating the two sides the excitement was intense, especially when Lindsay, who was deputising at full-back, was compelled to touch down when hard pressed by Penny.

Gradually the Hospital forwards wore down the opposition and established a decided superiority. After both sides had been awarded penalty kicks for offside or scrum infringements, Hogbin increased the lead for Guy's by kicking another magnificent goal from near the halfway line.

Following several rounds of passing between the threes, Windsor Lewis saw an opening on the left and cross-kicked over St. George's line. In the race for the ball, Johnson just beat the full-back and touched down for another try, which was not converted.

Subsequent play was fairly even, but there was no further scoring, and Guy's retired worthy winners, as stated.

Team.—M. J. Lindsay; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; R. J. Eustace, Windsor H. Lewis; R. G. Hunt, J. P. O'Shea, J. Cunard, R. J. Drummond, D. M. Leeming, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Fencing

Guy's v. R.N.C.

A MATCH was held at Guy's on February 18th against the Royal Naval College, and was won comfortably by 8 defeats to 19.

In foil the Hospital were much too good for their opponents, not a single fight being lost. This feat has not been accomplished in a match for some years. Morris was excellent, and was hit only once. Forbes was a little careless at the beginning, but settled down later. Miles was good and won his fights easily.

The epée was more even, Guy's winning by the odd fight. Morris and Irish were in good form and won two fights each. Hodgkin for some reason chose to abandon his customary steady patience, and, in consequence, was not nearly so effective as usual.

Like the foil, though in a different sense, the sabre proved to be a "grand slam." After losing his first fight, Morris did not have another hit scored against him. Irish, although not quite at home with the somewhat uncouth methods of his opponents, was effective, and won two fights. Miles might have been equally successful if one of his stop-hits had not fallen in a judicial refractory period.

Scores: Foil—Morris, 0 defeats; Forbes, 0 defeats; Miles, 0 defeats. Epée—Morris, 1 defeat; Irish, 1 defeat; Hodgkin, 2 defeats. Sabre—Irish, 1 defeat; Morris, 1 defeat; Miles, 2 defeats.

Guy's v. Westminster

GUY'S suffered their second defeat this season at the hands of Westminster School on February 27th, being beaten by 14 defeats to 13. Both teams were below strength, Guy's being weakest at epée, in which they lost 7-2.

The foil was won with 4 defeats to 5. Paterson fought with his customary polish, and was never extended. Forbes showed improved form, and nearly won all his fights. Machado parried well, but his ripostes were not well controlled.

Paterson was rather surprisingly beaten twice with the epée. Two defeats were likewise the portion of Hodgkin, while a subdued Irish scored his first "duck" of the season.

Irish recovered his spirits, however, in the sabre event, and gave us of his best. Paterson, in spite of some badly missed ripostes, won all his fights, but Wright, who, after an absence of eight weeks, was naturally below form, lost all his.

Scores: Foil—Paterson, 0 defeats; Forbes, 1 defeat; Machado, 3 defeats. Epée—Paterson, 2 defeats; Hodgkin, 2 defeats; Irish, 3 defeats. Sabre—Irish, 0 defeats; Paterson, 0 defeats; Wright, 3 defeats.

United Universities Fencing Championships

IN the United Universities Championships, which were held at the London Fencing Club on February 25th, Guy's were represented by two members, each of whom carried off high honours.

D. M. Paterson increased his ever-growing prestige by winning the foil championship, while in the sabre event J. F. Morris (the only competitor from London University) came near to emulating the success of E. L. Monkhouse last year, being placed second.

Hospital Information, etc.

Pass List

SOCIETY OF APOTHECARIES OF LONDON.
FINAL EXAMINATION.
February, 1932.

Surgery.

A. Kobylivker *W. W. Parry

Medicine.

*W. Hertzog L. G. Yendoll

Forensic Medicine.

G. A. Dingemans.

Midwifery.

*W. Hertzog A. Kobylivker

* Now holds Diploma.

Notice

GUY'S HOSPITAL MEDICAL SCHOOL

THE ADRIAN STOKES MEMORIAL FELLOWSHIP

Early in July, 1932, the School Council will proceed to nominate an "Adrian Stokes Memorial Fellow." The Fellowship is open to duly qualified medical practitioners or graduates in Science, Pathology or Bacteriology.

Applicants must not be more than 30 years of age and must be anxious to carry out further study in Pathology or Bacteriology in any of their branches.

The Adrian Stokes Memorial Fellow is required to carry out this study during a period of not less than six calendar months in his year of tenure, at a University, School or Hospital or other institution, subject to the approval of the School Council, except the School in which he has received his medical or scientific education. The Fellowship is of the value of approximately £300.

T. B. JOHNSTON,
Dean.

Special Notice.

We should like to draw the attention of medical practitioners and others to the new Out-Patients Time-table in this *Gazette*. Many of the days and times of attendances at the various departments have been changed, and a careful perusal of the table will obviate mistakes. During the last few weeks many patients have been sent up on wrong days, and much time has therefore been wasted.

Papers by Guy's Men

F. N. Doubleday. Extraction wounds and after-treatment. *Brit. Dent. J.*, 1932, liii, 121.

A. E. Rowlett. Prophylaxis in general practice. *Brit.*

H. Barber. Case of thrombo-phlebitis migrans. *B.M.J.*, 1932, i, 281.

C. H. Johnson. Case of osteomyelitis of frontal bone complicating acute frontal sinusitis; recovery. *J. Laryng. and Otol.*, 1932, xlvii, 63.

J. L. Payne. Deficiency of teeth. *Dent. Rec.*, 1932, lii, 63.

F. A. Walker. Approach to treatment of adult dento-facial deformities. *Dent. Rec*, 1932, lii, 74.

F. A. Knott. Laboratory control in treatment of anæmia. *Jour. Clin. Research*, 1932, xviii, 1.

J. C. Colbeck. Hæmorrhage in jaundiced patients. *Jour. Clin. Research*, 1932, xviii, 16.

J. A. Ryle. Natural history of duodenal ulcer. *Lancet*, 1932, i, 327.

A. T. W. Powell. Variola minor complicated by appendicitis due to threadworms. *Lancet*, 1932, i, 341.

E. K. Brown and A. J. Cleveland. Spirochætosis icterohæmorrhagica. *B.M.J.*, 1932, i, 283.

R. N. Johnson and S. Holt. Production of vulcanite dentures with improved surface. *B.D.J.*, 1932, liii (1), 197.

M. Campbell and J. W. Shackle. Note on aortic valvular disease. *B.M.J.*, 1932, i, 328.

Sir F. E. Shipway. Resuscitation during anæsthesia and of the newly born. *Proc. R.S.M.*, 1932, xxv, 463.

A. C. Hampson. Coarctation of aorta. *Proc. R.S.M.*, 1932, xxv, 420.

Sir E. G. Little. (1) Lichen planus, lichen spinulosus and cicatricial alopecia; (2) Lichen scrofulosorum; (3) Microsporide simulating lichen spinulosus. *Proc. R.S.M.*, 1932, xxv, 384.

W. M. Mollison. Hypopharyngeal carcinoma treated by deep X-rays; freedom from recurrence for four years. *Proc. R.S M.*, 1932, xxv, 448.

T. B. Layton. Recovery after meningitis with hæmolytic streptococci in cerebrospinal fluid under direct observation. *Proc. R.S.M.*, 1932, xxv, 488.

W. A. Mill. Unusual case of zygomatic mastoiditis. *Proc. R.S.M.*, 1932, xxv, 489.

R. J. Cann. Post-cricoid papilloma. *Proc. R.S.M.*, 1932, xxv, 450.

—— Acute mastoiditis and meningitis with streptococci observed on direct examination of cerebrospinal fluid. *Ibid.*, 489.

R. N. Ironside. Cerebral diplegia, its classification and prognosis. *Proc. R.S.M.*, 1932, xxv, 578.

D. Forsyth. Diagnosis of neurotic conditions in general practice. *B.M.J.*, 1932, i, 370.

Appointment

L. Brown, M.R.C.S., L.R.C.P., Sudan Medical Service, Khartoum, Sudan.

Death

HEATHERLEY.—At a Nursing Home, Golder's Green, on February 14th, 1932, Grace Edith Sackett, aged 75, formerly lady pupil at Guy's, Matron of Windsor and Stratford-upon-Avon Infirmaries and the Welbeck Hospital for Nervous Diseases, wife of F. Heatherley, Ashville, Audenshaw, Manchester.

EDS. { J. S. B. G. A. M. L.

GUY'S HOSPITAL GAZETTE

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THE College always has been, and no doubt always will be, an object for criticism, much of which, however is undeserved. It affords us great pleasure, therefore, to record the fact that during the past few weeks there has been much activity on the part of decorators within its walls—activity which has in some cases resulted in transformation scenes worthy of the most dazzling pantomime. Thus those rooms fortunate enough to have been selected for these long-needed redecorative procedures have, in the short space of the two days allotted for the treatment, achieved an air of cleanliness and spruceness hitherto not deemed possible. In certain rooms, even new carpets have appeared to the wonderment and awe of the inhabitants.

In spite, however, of these welcome improvements, there remains a source of discontent amongst College dwellers. We refer to the bathroom question. Not long ago it was considered that the Gymnasium was deserving of a more imposing entrance. Accordingly, to provide a more worthy ingress the shower bath was moved to new quarters at the sacrifice of a bathroom. The expense incurred by these structural alterations was, we believe, shouldered by the College Catering Club. This improvement left four bathrooms to minister to the needs of nearly 50 persons. Were these bathrooms in perfect order they would be insufficient for the demand made on them, particularly between the hours of eight and nine in the morning. As it is, one of them for all practical purposes is devoid of a water supply. Moreover, the other three show a regrettable disinclination to function in unison.

It is unreasonable to suppose that the College is in such a state of affluence as to be enabled satisfactorily to solve the problem. The profits of the Catering Company for the past year have not yet been made public but seems to be no reason for supposing that the balance sheet of this progressive undertaking will show any diminution in the annual surplus.

Would it not be possible, therefore, for the Directors once more to show their generosity towards the College inhabitants by a grant for the provision of some new bathrooms? That the bathing accommodation is a subject near to the hearts of all residents is amply testified to by the vociferous comments on the water supply which emanate from the basement each morning.

We make no apology for devoting so much space to this matter, for it is, we feel, one of importance. Any improvement that can be effected will earn the heart-felt gratitude of all present and future residents in the College.

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DURING the last few days many notices have made prominent the fact that coffee and light refreshments may be obtained in the College Smoking Room at 10 a.m. Whilst we realise that this will prove a welcome innovation for those who are forced to rise at dawn and make a long journey to order to reach the Hospital in time for the Registrar's round, we fear that for many it will encourage the formation of a pernicious habit.

The majority of students arrive each morning at about 10 a.m., and it is at this hour that, full of

zeal and eager for knowledge, they should repair to the wards, there to write reports or to acquaint themselves with new cases before their Registrar's arrival. But we fear that for many the temptation of a warm fire, a cup of coffee, and a cigarette will prove irresistible. Reports will remain unwritten, histories untaken, and the value of the round will be lost.

When we come to consider any possible advantages that might accrue from the habit, the question of the nourishment of the budding doctor presents itself. Is morning coffee and light refreshment a necessary item in the daily menu ? The answer is definitely "No." At 10 a.m. the majority of us are still digesting our breakfast, and further food and drink at such an hour is both unnecessary and undesirable. Indeed, it may produce that state of post-prandial torpor commonly seen on afternoon rounds in the Medical Wards.

We suggest, therefore, that the sale of morning coffee and refreshments in the Smoking Room should be discontinued. For, although the profit derived by the caterers may be considerable, the advantages obtained by the consumer will be negligible.

MR. BALDWIN found an audience of over 1,100 people in the Great Hall of University College on Friday afternoon, February 26th, when he delivered the first of the 20 annual lectures on "Happiness and Success" for which Sir Alfred Fripp left a legacy in his will.

After the lecture, Viscount Goschen, who was in the chair, handed over to the Treasurer of the Hospital the Trust Deeds of the Alfred Fripp Fellowship, which has been founded to promote research in the psychology of children. A memorandum of the regulations for the fellowship appears on page 109.

WE have been asked to announce that novels and other books are still required by the Free Lending Library for in-patients. These should be addressed to the Counting House.

Cerebro-Spinal Meningitis

A Clinical Lecture delivered at Guy's Hospital by A. C. Hampson, Esq., M.D.

GENTLEMEN,—Cerebro-spinal meningitis is a disease occurring not uncommonly in sporadic form, especially among young children. On occasions it becomes epidemic, and then young adults are often affected. In sporadic cases it is very rare to find a contact developing the disease, and the occurrence of epidemics is a little difficult to explain; such outbreaks appear to be associated with crowding under conditions in which ventilation is poor and the atmosphere is laden with moisture—outbreaks occurred among the troops during the late war. A contributory factor appears to be a sudden change of atmospheric temperature, and those individuals who already suffer from catarrhal conditions seem especially liable to be attacked, though it is a little difficult to differentiate between a predisposing condition and the onset of the disease, which often commences with a catarrhal condition of the naso-pharynx.

Sporadic cases may be accounted for by carriers. During epidemics, routine swabs from the naso-pharynx have given positive results in percentages as high as 70 among contacts. Such carriers may be divided into two groups: temporary, in which the infection is very short in duration, and chronic, in which positive swabs may be obtained up to 80 days.

The incubation period appears to be from one to seven days, though carriers have been known to develop the disease after intervals of seven to eight weeks.

There is little evidence of direct spread of the infection from the naso-pharynx to the meninges; invasion appears to occur from the naso-pharynx to the blood-stream. After a short interval, the brain and meninges are involved, and then, in the majority of cases, the organism disappears from the blood-stream.

The disease usually commences with catarrh. With the invasion of the blood-stream appear signs and symptoms usually encountered in septicæmic states—headache, pyrexia, rapid pulse. The tongue, at first white, becomes dry and brown. The bowels may be constipated, but often there is diarrhœa. The urine may contain albumin, and occasionally blood. In young children convulsions are not infrequent. A rash may make its appearance, especially on the chest and around the joints; in severe cases the rash may be generalised and may be purpuric, and in such cases coma and delirium develop rapidly and death may occur before the meninges become affected.

With the involvement of the meninges, vomiting becomes an important symptom. This is explosive in character, occurs early, and recurs at

irregular intervals during the course of the disease. The neck becomes stiff and some head-retraction is the rule. Kernig's sign is positive. Photophobia is present in about 10 per cent. of cases, and deafness is not rare. In milder cases the mind remains clear and insomnia may be a distressing symptom. In more severe cases, periods of apathy alternate with periods of delirium, which may be maniacal. In infants, there are varying periods of drowsiness and restlessness. With the involvement of the spinal meninges, root pains make their appearance, and there is often extreme hyperæsthesia—a point to be remembered when conducting such necessary operations as lumbar puncture. The original infection may spread along the Eustachian tube to the middle ear, and for this reason the ears must always be carefully watched. Photophobia usually results in the eyes being kept closed, and, unless one keeps them in mind, the frequent eye complications may be overlooked. These include conjunctivitis (often with hæmorrhages), iritis and hæmorrhage into the vitreous; papillœdema is common at some stage of the disease. The pupils are often contracted in the earlier stages, but later (and often this is associated with blindness) they become dilated—this is especially the case when hydrocephalus is developing. Transient squint, ptosis, or conjugate deviation are fairly frequent.

With the increase in cerebral tension in young infants, the fontanelle bulges.

Cutaneous reflexes are exaggerated, but the plantar and tendon reflexes vary from time to time.

The temperature is very irregular, probably dependent to some extent on variations in intracerebral tension. The pulse-rate, too, is very variable, but tends to be slow in proportion to the temperature, except at the onset and in the final paralytic stage. In infants, however, it is often rapid throughout.

Diagnosis is confirmed by lumbar puncture; the cerebro-spinal fluid is under considerably increased pressure, except in those cases, usually infants, where a block has occurred in the early stages. The fluid is turbid or frankly purulent, and examination shows large numbers of polymorph cells, which may contain the causal organisms, gram-negative diplococci, which may also be present free in the fluid. In many cases, however, the organisms may not be found except on cultivation of the fluid, and even this method may give negative results from time to time. The sugar in the fluid is reduced in amount and the protein increased.

In the presence of a history such as I have outlined, with a turbid cerebro-spinal fluid, whether the meningococcus is found or not a diagnosis of cerebro-spinal meningitis should be made unless there is definite evidence of another cause. For treatment to be effective it is essential that it should be commenced early; the presence of the organism will almost certainly be demonstrated at some time during the course of the disease, but, if treatment be delayed till that organism is found, in a considerable proportion of cases it will have been left too late.

Before going further, I want to say a few words on the pathological processes and to remind you of a few anatomical points, for it is from a knowledge of these that any true ideas as to prognosis and treatment must come.

In the earlier stages there is a general dilatation of the blood vessels, particularly at the base of the brain and in the choroid plexuses. A perivascular infiltration appears in the pia-arachnoid, and, to a less extent, in the brain and cord; in the latter particularly in the region of the posterior horns, associated with a degeneration of the myelin sheaths; the ventricular walls become œdematous; and numerous small hæmorrhages occur. The exudate is mainly polymorphonuclear in the earlier stages, but later, increasing proportions of lymphocytes are present. The exudate spreads along the nerves, especially the cranial nerves, and the Gasserian ganglion may be involved. (This may account, in part, for the tendency to corneal ulceration.) From the base of the brain the exudate spreads above the tentorium, then along the Sylvian fissure, and may spread over the whole of the cortex. Clinically, this occurrence manifests itself by interference with cortical function, as, for example, by convulsions. There is a marked tendency to adhesions.

You will remember that the cerebro-spinal fluid is secreted by the choroid plexuses; the fluid passes from the lateral ventricles, through the foramina of Monro, to the third ventricle, and thence through the aqueduct to the fourth ventricle; from here the fluid passes through the foramen of Majendie, an opening considerably larger than it is usually supposed to be, and through the lateral foramina of Luschka into the subarachnoid space of the cisterna magna. The lateral foramina are largely filled by tufts of choroid plexus. Above these openings is the inferior surface of the cerebellum. The subarachnoid space is crossed by numerous strands passing between the pia and arachnoid. From the cisterna magna the fluid passes along the base of the brain and upwards through the space between the edges of the tentorium and the mid-brain, bathes the cortex, and is finally absorbed through the arachnoid villi into the venous sinuses—mainly into the superior longitudinal sinus.

The presence of the strands between the pia and arachnoid fosters the tendency to adhesions and makes adequate drainage of the sub-arachnoid space very difficult. There are several situations where adhesions may lead to obstruction of the flow of the cerebro-spinal fluid. The first obstruction probably occurs in the region of the foramina leading from the fourth ventricle. Examination of any brain will convince you that the strands to which I have referred are very marked in this situation, which is also that part of the meninges where the exudate of pus is most marked. The choroid plexuses are engorged and add to the obstruction of the lateral foramina. At the same time, the cerebro-spinal fluid is being secreted in increased quantities; some degree of hydrocephalus results; the softened walls of the ventricles dilate; the aqueduct becomes dilated, thus decreasing the space between the tentorium and the mid-brain and increasing the tendency to adhesions in this situation. Further dilatation of the ventricles causes the cerebellum to be forced down with the medulla into the foramen magnum; this further increases the obstruction to the foramina opening from the fourth ventricle, increases the tendency to adhesions, and thus establishes a vicious circle. Such a condition is more likely to occur in young children in whom the spaces are smaller.

It was in 1878 that Gee and Barlow described, under the title of "cervical episthotonus," the condition which we still too frequently encounter under the name of posterior basic meningitis, the main signs and symptoms of which are due to the hydrocephalus resulting from an attack of cerebro-spinal meningitis. The ætiology was first pointed out 20 years later by Still. The picture is usually found in children from four months to two and a half years, but may be encountered in older children. I would draw for you the picture of an infant lying with open, unblinking eyes, often flecked with mucus, widely-dilated pupils, and perhaps some degree of strabismus. The fontanelle is bulging. The head is increasingly retracted, the back arched with transverse fold of skin lying across the emaciated body. The thighs are drawn back, with the legs stiffly bent on the thighs almost to a right angle. The hands are clenched and the straightened arms thrust stiffly by the side. At an earlier stage there is often a coarse nystagmus and a coarse tremor in the limbs on movement. Lethargy, nystagmus tremor, headache and vomiting, occurring during the course of cerebro-spinal meningitis, are signs, any one of which probably indicates the presence of hydrocephalus.

General hydrocephalus, associated with excess formation of cerebro-spinal fluid, occurs early in the disease, and often later for some time after the fluid has become sterile, but it is the internal hydrocephalus which is so uniformly fatal, and as the recognition of its ætiology first came from a Guy's man, so, I hope, success in attempts to reduce its mortality may come from this hospital.

I have already called your attention to complications involving the eyes—conjunctivitis, corneal ulcers, iritis, optic neuritis, hæmorrhages. Blindness, or at least diminution of vision, is almost the rule at some stage of the illness, but recovery of vision is usual. Panophthalmitis is a rare complication. Deafness may occur and tends to be permanent. Otitis media has already been mentioned. Aphasia, facial paralysis, monoplegia, paraplegia and hemiplegia also occur, with a marked tendency to recovery of function. Pyelitis is extremely common, and accounts for a number of cases in which pyrexia persists after the cerebro-spinal fluid becomes sterile. Joints are sometimes involved in the early stages of the disease, and it may be difficult to differentiate these from a reaction to serum; the distinction is not of extreme importance as the condition almost invariably subsides and requires only symptomatic treatment; more rarely, a single joint becomes affected as a late complication, and this may require aspiration. Broncho-pneumonia is only too common as a terminal complication. Pericarditis is rare. Drowsiness is common for a long time after a severe infection, but this is probably to be encouraged as giving rest to the cortex, which has been the seat of prolonged stimulation, often associated with long periods of insomnia.

Some complication is present in perhaps 20 per cent. of cases, but those producing lasting sequelæ are not common. Deafness occurring in infancy may lead to mutism. Mental impairment probably occurs in less than 2 per cent. of cases which recover; I think that this requires stressing, as I have several times heard the question asked: "Is it worth while making a long fight for the life of a patient when there are such risks of mental deficiency?"

The acute onset, with vomiting, headache and pyrexia, may be mistaken for that of a number of complaints, but the early appearance of a bulging fontanelle in an infant, or of neckstiffness in an older child, should always be sufficient, when associated with the above symptoms, to determine the necessity for lumber puncture. The latter procedure certainly has its attendant risks, but the risk of waiting is much greater. The maxim in these cases should be: If in doubt, perform lumbar puncture. With increasing experience, cases of

polio-encephalitis and of meningismus will probably be diagnosed without puncture, but the risk of taking off a small quantity of fluid for examination in these cases is very small when compared with the increased mortality associated with every 24 hours' delay in cases of cerebro-spinal meningitis. In meningismus, the degree of neck rigidity is usually out of proportion to the rigidity of the legs, as determined by eliciting Kernig's sign; vomiting is not so frequent; the pulse rate (and often the respiration rate) is higher in proportion to the temperature. In most cases of meningismus there is fairly rapid improvement in the rigidity of the neck, and, at the same time, other associated conditions, such as pneumonia, become apparent.

In tuberculous meningitis, the onset is usually more insidious. Head retraction and Kernig's sign are much more variable, and usually not so marked. A tuberculour focus may be found elsewhere. Lumbar puncture confirms the diagnosis.

In pneumococcal meningitis, the illness is, as a rule, more rapid and severe. Examination of the cerebro-spinal fluid may demonstrate the pneumococcus.

In infantile convulvions, the fontanelle is often bulging, but this subsides after the fit. In the diarrhœa and vomiting of infancy, there is often some degree of rigidity, but the fontanelle is depressed.

TREATMENT

If in a hospital ward the case should be placed on "precautions." Those attending the case should attend to the toilet of the naso-pharynx; possibly a 1 per cent. solution of chloramine T. as a gargle or nasal spray is best for this purpose. A mask worn over the nose and mouth will minimise the risk of "carrying." Attention to ventilation and overcrowding has already been mentioned.

Every attempt must be made to keep up the patient's resistance by giving easily assimilable food. In older children, strong likes and dislikes are often manifested, and, within reason, these should be considered. Often, immediately after an attack of explosive vomiting, a feed will be retained, whereas if an interval be allowed to elapse, as is so often the case, vomiting recurs. The hyperæsthesia and restlessness call for great patience in nursing, the patient requiring, and often loudly demanding, constant change of position. The restlessness and the trophic changes associated with the disease cause a considerable tendency to bed-sores, and when it is remembered the important part lumbar puncture takes in the treatment of the disease, the presence of bed-sores introduces difficulties which may prove almost insuperable. It is the duty of the medical man, as well as of the nursing staff, to anticipate these difficulties. Restlessness and pain may require sedatives. Bowels and bladder require attention; paralysis of sphincters produce incontinence, but the possibility of incontinence with overflow must not be forgotten. Pyelitis will usually respond to potassium citrate in doses sufficient to keep the urine alkaline, and this may well be given prophylactically. Death not infrequently results from broncho-pneumonia, and it is of extreme importance to keep the chest moving; changes of position during the period of restlessness are of assistance, the main risk is during the periods of drowsiness and apathy. Small amounts of lotio alkalinæ introduced into the nostrils help to keep a free airway, and these may be followed by a little 1 per cent. chloramine T. In a young infant the careful combination of the tincture of belladonna with the potassium citrate is probably an advantage. A fatal issue is most commonly associated with medullary failure, and medullary stimulants should not be withheld till the probability of their doing any good become remote. On the other hand, these stimulants have their drawbacks; caffeine tends to be too exciting to the cortex and strychnine may increase the tendency to opisthotonus—but, even so, especially if combined with a small amount of sedative, is probably the best drug. Its exhibition requires judgment, but its presence on the treatment-sheet should not be allowed to represent the last-minute prick of the conscience of a too-cautious medical attendant.

The condition in the meninges is a purulent one, and one which we have seen is peculiarly liable to produce adhesions, which in themselves may be almost more dangerous than the actual infection. Drainage is essential, and this is carried out by means of repeated lumbar punctures. During the first 24 hours, this should usually be done twice, and thereafter daily while the infection lasts or while the fluid is under tension, and in this connection it should be remembered that the infection acts as a stimulus to the increased secretion of cerebro-spinal fluid. The timely withdrawal of fluid may avoid the development of hydrocephalus. For lumbar puncture, the fourth lumbar space is the site for choice, but a dry tap in this situation may lead one to puncture in a higher space, and this may be necessary in order to avoid undue soreness of the skin after repeated punctures. If fluid cannot be obtained by lumbar puncture, it is necessary to take the risks involved by cisterna puncture, an operation sufficiently easy in a normal person, but often difficult when layers of pus and the softening of the tissues due to the inflammatory process abolish the characteristic sensation pro-

duced as the needle perforates the dura. The amount of fluid to be taken off requires considerable judgment; it is better to puncture twice than to draw off too much at a time. The sudden release of pressure may cause the cerebellum to be driven down as a cone into the foramen magnum, or, a more frequent happening, lead to intra-thecal hæmorrhage from capillaries, suddenly deprived of supporting pressure. A careful watch must always be kept on the pulse and respiration. Warm, polyvalent, anti-meningo-coccal serum should be introduced under the pressure of gravity only, the amount introduced being usually about 5 c.c. less than that withdrawn. The patient's head should be lowered during this operation, and again the pulse and respiration must be watched with extreme care. After the first few c.c. have entered, it may be necessary to lower the funnel and allow it to escape again if medullary signs or pain in the distribution of spinal nerves make their appearance. After an interval of a few minutes, the serum can then usually be introduced without further symptoms. Immediate steps must be taken to have the organism cultivated and agglutinated against the various brands of serum on the market; it is frequently found that one of these agglutinates well, whereas others do so poorly, if at all. Probably it is due to lack of this precaution that the use of serum has met with opposition from some who have had experience of an epidemic in which the use of serum appears to have failed. It must be within the experience of most physicians who have treated this condition to have encountered cases which have shown a dramatic change from the moment the brand of serum was changed. In the earlier stages, when the condition is septicæmic, the administration of serum may abort the attack. It seems extremely doubtful whether the serum penetrates into the ventricles, which are infected, and in cases in which the usual measure fail the ventricles should be punctured and serum introduced; this procedure is not necessary in the majority of cases.

Methods of dealing with the posterior basic meningitis after a block has occurred must be regarded as on trial, and it would be premature to discuss them now.

PROGNOSIS

The prognosis varies in different epidemics, but numerous statistics are now available for epidemics in which groups of cases have been treated with serum, while others have been treated by simple drainage in the same institution and under the same direction. Taking large groups of cases, the mortality appears to have been reduced by about 40 per cent. since the advent of serum. For all ages the mortality has been reduced from about 70 per cent. to 30 per cent. The longer the initiation of treatment is delayed the graver becomes the prognosis.

Even with the use of serum, in patients over 40 years of age and in those under one the mortality is high; in patients under one year, about 50 per cent. die, the younger the infant, the worse being the prognosis.

Remote prognosis I have already discussed, and it is sufficient now to repeat that in those patients who recover from the infection the probability of important sequellæ is small.

Cleft Palate

A Paper read before the Guy's Hospital Dental Society, February 15th, 1932, by J. B. Hunter, Esq.

MR. PRESIDENT and GENTLEMEN,—I venture on this somewhat unpractical subject for two reasons. The unusual forms the interesting part of dentistry—the three-rooted canine, transposed canine and first premolar, unerupted teeth, absent laterals, six-cusped upper molars, the patient who, his teeth having baffled three dentists, then comes to you—such cases take away the killing monotony of the same kind of work, day in, day out, for years, which does more than anything else to destroy the dentist's joy in his work and shorten his life. Of such interest is cleft palate to the practitioner; although he may only treat one case in ten years, yet it makes his sphere of service a little wider, and the work he does, if done well, brings great relief and comfort to the patient.

Also, if a dental surgeon acquires a practice in a small country town some distance from any great city, there is usually a local surgeon specialising in head and neck operations to whom cleft palate cases are brought. A connection with this surgeon having been obtained, cases of cleft palate would no longer be of rare occurrence, and another interesting branch of dentistry, the treatment of fractured jaws and facial and oral restorations, would also come within the range of this practitioner.

"Cleft palate is a lack of continuity of the roof of the mouth throughout the whole or a part of

its length, in the form of a fissure extending antero-posteriorly."

Cleft palate has considerable variation in its forms. Brophy in his "Oral Surgery" divides it into 15 types, but the main types are these. The cleft may be of the uvula (1) or solf palate only (2), or it may involve the hard palate as well, when the cleft may be complete or incomplete.

A complete cleft of the palate occurs when one maxilla is separated from the premaxilla and the maxilla of the opposite side, the cleft extending right through the alveolus (3). This type is almost invariably accompanied by hare-lip. Sometimes the premaxilla is displaced forward on the end of the nose. This is always associated with double hare-lip.

An incomplete cleft of the hard palate (4) occurs when the two maxillæ are separated from each other, but are united to the premaxilla.

In the majority of cases cleft palate is complicated with hare-lip. The ætiology of cleft palate assigns heredity, pre-natal impressions and imperfect nutrition during the early months of pregnancy as causes of this deformity.

(1) *Heredity.*

As characteristics and other abnormalities, such as blindness and insanity, are known to be inherited, so it is extremely probable that cleft palate is also passed on from parent to child (5). Most people deny any previous history of cleft palate in the family, but careful investigation has revealed several long family histories of clefts, which may be absent in one generation only to appear again in the next. A man having cleft palate, the children of his first wife may be free from abnormality, but the children of his second wife may again manifest the deformity. Our younger students will, perhaps, remember Mendel's *dominant* and *recessive* characteristics.

(2) *Pre-natal or Maternal Impressions.*

The mother usually attributes the cleft to some shock or pre-natal impression she received when carrying the child. The time of the shock is usually said to be about the fourth or fifth month of pregnancy, but as the palate is completely formed and united by the beginning of the ninth week, the supposed shock in most cases of maternal impressions can obviously have nothing to do with producing the cleft.

(3) *Imperfect Nutrition.*

Dr. Strauss, who was studying abnormalities of animals in the Zoo at Berlin in October, 1913, made the observation that imperfect nutrition may be a causal factor in the production of cleft palate.

Four years ago 32 jaguars were born of one mother by the same sire within a period of one year. *All* of these animals had cleft palate and *all* died. At that time they were fed on cold meat from which the blood had been allowed to escape. Three years ago the diet was changed, and the parent animals were fed with meat which was still warm and which contained blood. Since this change there have been two litters a year (about 25 jaguars), not one of which has had a cleft. It would be interesting to work out a system of diet in the human race, especially in those famiiies in which there is a marked tendency for cleft palate and hare-lip to appear. Not that I suggest we should go back to warm meat containing blood. Still, if any gentleman likes to offer his gold watch —er—I mean, himself to go to an island in the South Seas to study the incidence of cleft palate in cannibals, we should be grateful.

A further factor in the production of cleft palate is considered by Warnekros to be the presence of supernumerary incisor teeth or rudiments of the same in the cleft. First, he and several others noticed the presence of supernumerary teeth, and then he propounded the theory that the cleft originates in the intermaxillary bones (6). This may account for the position of the lateral incisor in tripartite clefts, especially as Warnekros has demonstrated by serial sections that the tooth rudiment precedes the bone rudiment. But, on the other hand, as the typical mammalian formula is

$$T = \frac{3\ 1\ 3\ 4}{3\ 1\ 3\ 4}$$

the presence of supernumerary teeth is probably only a reversion to type, and is not a true causal factor of cleft.

The Effects of Cleft Palate are both physical and psychological. The physical effects consist of malnutrition, defective speech and abnormal dentition.

When the cleft is not discovered at birth the first sign is difficulty in swallowing and regurgitation of food through the nose. In infants, malnutrition is very serious, and the baby soon becomes emaciated through lack of nourishment, develops gastro-enteritis and dies of starvation. As many as 50 per cent. of cleft palate cases die in infancy without operation.

The speech of persons afflicted with cleft palate is characterised by a peculiar nasal intonation due to the inability to separate the oral from the nasal cavity during speech. Patients vary as to the powers of speech, but usually are almost unintelligible to an ordinary person. Vowels can be uttered fairly well, but labial and gutteral sounds such as S and H cannot be produced.

Defective speech is a great drawback to any person in taking up a career, or in obtaining work.

The teeth in these cases are usually quite irregular and of poor structure—hypoplastic. In complete clefts the irregularity is very noticeable, and teeth at the sides of the cleft are usually absent.

The psychological effects of untreated or badly treated cleft palate are worse than the physical effects. As soon as the patient is old enough to become self-conscious, he realises he is abnormal both in appearance and speech. Naturally, he becomes sensitive to criticism, and children can be cruel in their harsh criticism and ridicule of one another for slight departures from the normal.

This defect creates a lack of self-respect, and consequently an inferiority complex develops. The patient feels his condition acutely and shuns his fellow-men.

The condition of cleft palate calls for immediate treatment before these attendant evils come into being. Treatment depends, firstly, on the age of the patient and, secondly, on the nature of the cleft.

We shall consider treatment from birth. If there is no hare-lip the abnormality is often not discovered until the infant is a few days old. The signs are regurgitation of food through the nose, and hare-lip, when present.

The first object of treatment is to remedy malnutrition, and to ensure that the general condition of the patient is good. To enable the baby to get enough nourishment the old home-made device of feeding with a spoon has been superseded by several more scientific methods.

For bottle-feeding, cleft-palate nipples are manufactured (7). These are fitted with a flange which covers the cleft and prevents regurgitation through the nose.

The best devices, however, are soft rubber palates for breast feeding. One type (8) consists of a thin rubber palate with a bent metal handle, which is placed in the infant's mouth by the mother and held against the cleft while nursing. The other type is constructed on the principles of a denture, and passes over the alveolar ridges, having good enough retention to stay up by itself.

As soon as the baby is well nourished and in good condition, permanent treatment must be considered and applied before the child begins to attempt speech.

Treatment of cleft palate has arisen along two different lines, surgical and prosthetic, and of these two methods of treatment the surgical is *always* to be preferred, if possible. Prosthetic methods are older, but operation on the cleft palate has gradually superseded the use of appliances, because, if successful, the abnormality is removed, and the patient *feels* the defect is gone, and that the treatment is far more efiective than having to wear an appliance all his life, and having always the horrible thought that if he went hiking to the wild, open spaces for a healthy holiday and broke his obturator he would be reduced to gibbering incompetency until he returned to civilisation. Also surgical treatment is a greater help to normal speech than a prosthetic appliance, and if the patient is operated on early enough perfect speech can be obtained.

The next thing to consider is the optimum age for operation, and on this point *many* learned authorities disagree considerably. The operation age depends partly on the type of operation, but some surgeons advocate operating as soon as possible ; some operate on the cleft before closing the hare-lip, others close the hare-lip before the cleft. The two accepted times for operation are before the child begins to talk, and in the fifth or sixth year of age.

Several types of operation for closing the cleft have been devised by Brophy, Lane, Langenbeck, Davies-Colley and Gillies.

The Brophy Cleft Palate Operation in Early Infancy differs radically from all other operations in that, instead of covering over the gap in the bone with flaps of soft tissue, Brophy eliminates the gap by approximating the maxillæ, thus bringing about union and forming a continuous bony palate.

I wish I could describe to you the Brophy operation in detail, but unfortunately I haven't time. The principles are easily understood from these diagrams (9) (10).

Lane's Operation on cleft palate consists in closing the gap with flaps of soft tissue reflected from the hard palate on either side of the cleft. The flaps to allow for contraction must be large and thick, and the flap on one side extends to the buccal side of the alveolar ridge. The operation should be performed before the milk teeth erupt in order to obtain sufficiently large flaps to close any gap no matter how wide it may be.

The larger flap (11) is reflected across the cleft with its epithelial surface looking towards the nose and its raw surface towards the mouth, and is tucked in under the smaller flap (12) (13). The flap from the nasal surface of the soft velum of the other side is reflected so that its epithelial surface looks towards the mouth, and it covers part of the raw surface of the larger flap, thickening and strengthening the soft palate. By the same method a cleft of the soft palate is closed. The large areas of bare bone left in Lane's operation heal up rapidly.

Other flap operations such as Davies-Colley and Langenbeck are similar in principle.

Gillies-Fry Method.—Cleft palate is important as an abnormality more because of its physiological results than because of the anatomical deficiency.

The physiological functions of the palate are two. To separate the nasal cavity from the mouth, and thus ensure correct formation of speech and easy swallowing. During this function the soft palate is raised and extends backwards to the posterior pharyngeal wall, preventing any communication of the mouth with the nose. The second function of the palate is to allow nose-breathing while masticating food, and then the soft palate moves downwards and forwards until it comes into contact with the (back of the) tongue, shutting off the mouth from communication with the pharynx.

Therefore, all that seems to be necessary to obtain perfect functioning of the palate is that the soft palate shall be able to shut off the mouth from the nose or from the pharynx at will.

The Gillies-Fry method of treatment aims, then, at obtaining a soft palate sufficiently long and sufficiently mobile to function perfectly, leaving the cleft in the hard palate to be closed later with an obdurator. Mr. Gillies makes incisions laterally in the two halves of soft palate, detaching them freely from the posterior border of the hard palate, but the line of the incisions is such that the tendons of the muscles are left intact, thus preserving their function (14). The flaps so formed are quite long enough and mobile enough to meet in the midline without tension. There is no cutting out of sutures, and by this method of incision the soft palate is actually made longer, so that it easily touches the posterior pharyngeal wall, separating the nasal from the oral cavity. The defect in the hard palate is made larger, but this is of no importance and is treated later. To prevent the formation of scar tissue, which by its contraction would decidedly shorten the soft palate, the raw surfaces which have been left are covered with an epithelial inlay or Thiersch skin graft held in place by a prosthetic appliance.

The epithelial inlay, if it takes, ensures quick healing of the tissues without subsequent contraction.

An impression of the palate and cleft is taken before the operation, and a masticating plate is made provided with a wire loop extension passing backwards into the cleft. As soon as the soft palate is sutured, the masticating plate is placed in the mouth, and a plug of gutta percha placed on the extension and moulded into the gap. The gutta percha acts as a temporary obturator, keeping the skin graft in place on the anterior edge of the new soft palate, which it also holds upwards and backwards in correct position while healing.

On the tenth day after the operation, the gutta percha is removed and a composition impression of the gap is taken, from which a vulcanite obturator is rapidly made. The obturator is of the same thickness as an ordinary denture, just covering over the gap, except at its posterior border, which is thickened (diag.) so that the soft palate can rest against it and use it as a fulcrum on which to swing. Occasionally, when there is very little tissue with which to construct a new soft palate, it may be necessary to stretch the palate backwards, and this is simply accomplished by inserting a Badcock screw into the obturator, which is sawn through so that it can be extended backwards and upwards.

According to Kelsey Fry, the operation should not be performed before the sixth or eighth year. The care of the child until that age consists in fitting a small sucking-plate shortly after birth, and at the age of three months closing the hare-lip, if present. When the milk teeth erupt, a small masticating plate is substituted for the sucking plate, and in the fourth year a small obturator is made so that the child shall become accustomed to wearing a plate and as an aid to speech.

The aim of the Gillies-Fry method of cleft palate treatment is to obtain perfect function of the soft palate, *i.e.*, perfect speech, perfect mastication and normal nasal respiratory function, and in nearly all cases the result is perfectly successful. The only disadvantage is that the patient will have to wear a plate all his life, but, as the teeth in a case of cleft palate are generally either missing or badly displaced, a plate is often necessary without operation.

Several operations for cleft palate are successful in obtaining a good *anatomical* result, but their *functional* result is poor.

If one goes for a short walk just after lunch to the right of the Dental Department, one approaches the latest perfume factory for medical students, where, at 1.30 p.m. every day, are to be seen the results of similar operations. If one listens carefully to the history of some unfortunate patient who has passed through the surgical side of the hospital one will hear: "The operation was perfectly successful, but the patient afterwards died of shock."

Unfortunately the patient did not live long enough to benefit from the perfectly successful operation.

On the other hand, the Gillies-Fry treatment of cleft palate does not attempt a perfect anatomical result, but produces a good functional result.

Surprising though it may seem, patients prefer a good functional result to a perfectly successful anatomical operation.

After-treatment of cases of cleft palate consists in keeping the mouth as aseptic as possible by means of mouth washes several times a day, which can be sprayed on the palate if necessary. If sepsis sets in the palate sloughs, and the last state of that patient is worse than the first.

Speech training is essential if the operation is made after speech development, as the mere closure of the cleft palate does not, as a rule, improve the speech to any appreciable extent. Faulty habits of speech must be corrected, and wrong neuromuscular associations broken down. In the absence of a normal palate, after the first year the patient tries to speak by utilising the muscles of the pharynx and the cleft soft palate. Therefore these muscles hypertrophy in their efforts to produce normal speech. Speech training by a skilled elocutionist will prove of more value to the patient than the operation, and no treatment can be counted complete without this.

There has always been a controversy between surgeons and prosthetists as regards the relative merits of surgical and prosthetic treatment of cleft palates. All I wish to say is that I have seen in the denture room about half a dozen cases which could easily have been operated on, and when I asked the dresser why he was making a prosthetic appliance he replied, " I don't know."

PROSTHETIC TREATMENT

There are two distinct types of appliance for closing cleft palates—the artificial velum and the obturator, differing both in details of construction and in the manner in which they operate.

The obturator is an inflexible plug or cover ; a stopper to fill the opening.

The artificial velum is, as the name implies, a flexible substitute for the movable soft palate.

The technique in the construction of an obturator is in two stages, as follows :—

A rough impression of the palate is first taken, passing as far back into the cleft as possible. On the cast obtained, a special tray is made with an extension posteriorly, so that an accurate impression of the cleft can be secured. The impression of the cleft can be taken in either plaster, composition or gutta percha.

An accurate cast is produced in hard plaster and a model palate formed in baseplate or tin with an extension consisting of a loop of wire passing back within the cleft on a level with the contracted velum. If teeth are to be replaced, a try in will be needed, and means for retention must be secured. Also, if the cleft is wide, the height of the vault will have to be constructed to suit the individual case. The denture with its loop extension is then vulcanised and finished.

The second stage is to construct the obturator for the soft palate. The loop extension should lie just inside the borders of the cleft, and if it does not the wire should be bent until it is in correct position.

A piece of impression gutta percha is heated and moulded on to the wire extension until it is about large enough to fill the gap. The denture, with the gutta percha attached, is inserted in the mouth, and the patient is instructed to swallow and speak, in order that the muscles in action may mould the soft gutta percha into the best shape for an obturator. All excess is trimmed away.

Gutta percha retains its elasticity and can be gradually moulded by the muscles, so the patient is sent away for a week to allow the obturator to assume its permanent form.

The final form of the gutta percha is a thick plug, wider above than below, so that the contracted muscles still touch it when the soft palate is raised. Posteriorly the obturator does not touch the pharyngeal wall except in the act of swallowing, when Passovant's pad is raised to meet it. The thickness of the obturator is adjusted until the soft palate is on a level with its lower surface in relaxation, and in contraction with its upper surface. It is important to see that the posterior surface does not make too hard a contact with the pharyngeal wall, or else ulceration may occur.

The denture, with the gutta percha model of the obturator, is now flasked in the usual manner, causing the flask to separate along the plane of the upper border of the obturator. For the sake of lightness the obturator is usually made hollow, and this is accomplished by using three pieces of thick rubber, one to go round all the sides, one for the bottom and one for the top.

The gutta percha pattern is removed by heating until it becomes quite soft. The bottom and sides of the mould are then covered with the rubber and small pieces are packed internally over the joints, which have been brushed over with chloroform. The bulb may be filled with plaster, which becomes soft after vulcanisation, or with asbestos or pumice powder, and these can be removed afterwards through a small hole made preferably in the nasal surface of the bulb. This hole is filled up with a small vulcanite plug, filed off level with the surface (15).

Great care must be taken in putting the top piece on the bulb, and the joint is painted over with chloroform and pinched together to avoid leakage.

After vulcanisation, a small hole is made in the nasal surface of the bulb and the filling is removed. A vulcanite bung is put in the hole and the obturator is finished and polished, when it is ready for its final insertion in the mouth (16).

The artificial velum is often used as a temporary expedient to obtain better speech before an obturator is inserted, and sometimes a soft rubber velum is constructed as a permanent appliance.

The principles of the artificial velum are :—

1. That the artificial velum should embrace the levator muscles of the palate so that it can be lifted by them.

2. That it should bridge the upper pharynx behind the uvula and cut off nasal communication at will.

The Kingsley velum consists of two flaps (17) joined throughout the median line. The lower flap, the one which completes the palatal dome, extends from the apex of the fissure posteriorly as far as the bases of the uvulæ. Its general form is that of a triangle, the base extending across from one uvula to the other and overlapping the soft parts sufficiently to prevent its being pushed upwards through the cleft. The upper flap is of similar shape, but its posterior border is curved and thinned out to a feather edge, so that when in occlusion with the pharyngeal wall it curls up, thus presenting a flat surface for better contact, while its thinness prevents irritation to these sensitive parts. This flap is above the cleft and rests upon the upper surfaces of the divided palate.

The two flaps are united along the median line, and, having but a narrow line of union, grooves are produced laterally, and when in position the two halves of the soft palate rest in these grooves (18), showing velum in position.

The appliance functions as follows: In the effort to close off the upper passage, the sides of the divided natural palate approximate each other, and at the same time are drawn upward. Thus they first hug the artificial velum tightly, and then, owing to its elasticity, carry it upward. Coincidently, the wall of the pharynx rises, forming a ridge which meets the feather edge of the artificial velum, curling it up, thus accomplishing perfect contact and completely preventing the escape of air through the nasal passages. At the same time the velum, completing the proper arch of the vault, is rigid enough to serve as an efficient abutment for the tongue when necessity compels such contact.

THE TECHNIQUE IN CONSTRUCTION OF AN ARTIFICIAL VELUM

The denture, with stud or extension, is made in the same way as for an obturator, so that it is not necessary to repeat the description of the technique. The finished denture is inserted in the mouth and a model of the velum in pink wax is formed. It is attached to the denture and its shape modified by repeated insertions in the mouth and trimming where required.

The wax pattern is more rigid than the soft rubber, and this must be allowed for when forming the velum through the action of the muscles. A satisfactory form of velum having been secured, the next step is to reproduce the wax pattern in soft rubber. If the velum is to be of the detachable type which "buttons on," the pattern is now detached from the denture and flasked and vulcanised separately. It is very difficult to finish soft rubber vela after vulcanisation, as they can neither be filed, sandpapered nor polished. The best method is to produce a good surface during vulcanisation by vulcanising between metal. The only "finishing" then required is to cut off the "feather edges" of the velum with a pair of scissors.

The wax pattern is flasked so that the plaster investment is in three sections (19). A pin is placed through the pattern where the stud hole in the velum should be and, after boiling out, this is left in the plaster section. Each section has now to be reproduced in Babbitt's or type metal.

The three sections are then polished and fitted into the flask. Just before use they are soaped and velum rubber packed in in the usual manner. The resulting velum should need practically no finishing. The metal sections are kept permanently, and used again whenever the velum needs renewing.

When the velum is to be fixed permanently to the denture with a loop extension, the denture and wax pattern are flasked together in a large two-part flask. To provide a metallic surface in contact with the rubber during vulcanisation thin tin-foil is swaged on to the plaster mould in the flask. This method of obtaining a finished surface on the velum rubber entails less work, but leaves no permanent mould after vulcanisation for renewals.

In order to combine the advantages in speech and comfort possessed by the artificial velum with the permanence of the obturator, Dr. C. S. Case devised what he calls a velum-obturator—an appliance constructed first of soft rubber which, when the patient has become accustomed to wearing it and has acquired better articulation, is replaced by hard vulcanite and so can remain as a permanency in the mouth.

Another advantage of Case's velum-obturator is that it requires no supporting denture, though such a denture is provided at first until the patient becomes accustomed to the new palate.

The Kingsley velum has two flaps, the upper of which is prolonged posteriorly into a curved feather edge (20). This thin posterior edge is sustained by the thickened central portion of the flap.

The Case velum-obturator is quite different in form from the Kingsley velum, in that with the former all the central portion of the palate is thin, while the edge of the velum is thick, in the form of a solid roll $\frac{1}{4}$ inch in diameter, or, preferably, triangular, with rounded corners, so that its outer flattened surfaces exactly and firmly fit the pharyngeal walls *when the muscles are in a contracted state.*

This (21) represents the palatal view of the artificial palate with transverse sections. This (22 shows verticle sections antero-posteriorly, and this (23) shows the palate in position.

In extensive clefts the borders of the velum-obturator extend forward along the lateral walls of the pharynx and posterior nares and, becoming thinner, form the borders of the nasal extensions which rest upon the floor of the nares. When the cleft does not extend into the hard palate, the velum is shaped in a similar manner, but with the nasal portion abridged to meet the requirements of the case. Where the cleft extends into the hard parts, the body of the palate which covers the borders of the cleft and forms the lateral wings on the roof of the mouth should not extend back of the attachments of the bifurcated soft palate, nor in any way interfere with the free action of the muscles; neither should it extend upon the roof of the mouth any further than is necessary to give a firm seating for the palate. This portion should be about as thick as an ordinary rubber plate, being thinned along its oral borders and thickened to form the nasal borders.

In the Kingsley velum, early deterioration of the rubber causes the curling up of thin edges of the velum. When this occurs, as it frequently does, the vocal usefulness of the palate is impaired, if not destroyed, in proportion as it permits the escape of air at the curled-up portion of the border.

The heavy border of this velum is sufficiently yielding and flexible to be worn with comfort if properly fitted, and does not curl up, nor deteriorate as easily as the feather edge of the Kingsley velum.

In constructing this appliance, as Mr. Kelsey Fry would say, "Everything depends on the impression." In taking the impression, where the cleft is extensive or even extending somewhat into the hard palate, it is essential to obtain a perfect cast of that portion of the roof of the mouth over which the palatal portion of the plate is to extend, and along the borders of the cleft forward of the pendent portions of the soft palate, extending somewhat upon the floor of the nares and representing as perfectly as possible the nasal borders of the cleft and lateral surfaces of the posterior nares.

It is frequently possible to reproduce these surfaces perfectly in the cast of the impression. By obtaining a perfect impression of these unyielding surfaces, which otherwise, on account of their position, would be very difficult to reproduce, the anterior borders of the artificial velum can be perfectly fitted to them as they merge into the nasal borders of the body. Preparatory to taking the impression the cleft and surrounding tissues should be well studied to determine the character and extent of the impression. For all clefts that involve the hard palate, an accurate plaster impression of the parts outlined is not more difficult than most impressions for partial dentures.

The impression (24) can be taken in plaster, dividing into sections at the borders of the cleft. The first section is passed freely into the nasal cavity with a spatula, stopping it abruptly at the borders of the cleft. The under surface is then lubricated with a solution of white vaseline or with oil, and the first part of the second section is delicately laid on with the spatula, so as not to lift or dislodge the upper section. The plaster is spread out over the roof of the mouth with a spatula, and, when partially hard, is strengthened for removal with fresh plaster introduced in a flat impression tray. The impression does not need to extend even to the gingival borders of the teeth. Throughout this operation the patient must be treated with a kind but firm hand.

In filling and trimming the casts from these impressions, nearly all that portion posterior to the attachments of the soft palate is cut away and the nasal portion opened and freely exposed to the extreme nasal borders produced by the impression. This is done to facilitate shaping the trial model of the palate, and its ready removal and replacing during the process of repeated trials in the mouth.

The model of the body of the palate is formed first and then inserted in the mouth for trial. At this time the lateral nasal extensions should be abridged to facilitate introduction. They can be added to at the time of investment, and, if desired, still further extended by scraping the metal casts.

The position for the border surface of the velum is determined with a loop of small soft copper wire, the ends of which pass into thin tubes about half an inch long, imbedded in the upper surface of the trial model. The loop is drawn out to about the proper size and shape and the trial model inserted into the mouth for correction, etc., until the wire is seen to rest along a zone of the pharyngeal walls that is best adapted to unite in its muscular action with the artificial velum for the ultimate closure of the naso-pharyngeal opening.

The path of this pharyngeal zone, which practically should extend from the lateral extension of the nasal borders on each side back to a line immediately in front of or slightly above the greatest contracted extension of the superior pharyngeal muscle, is carefully chosen to avoid impinging upon the Eustachian opening, and to obtain the most active possibilities of the muscles. The surrounding muscles can be made to contract by a slight titillation of the surface, and, what is of the greatest advantage, the pharyngeal walls above and below the wire can be readily seen through the open loop and the action of the muscles studied.

After fitting the wire to mark the desired outlines of the velum, the roll of composition which is to form the model of the border may be attached to the loop, following the outlines of its peripheral surface. When this is introduced and the muscles caused to contract its position and requirements can be readily seen. By repeated trials, its required form and relations are produced. The line of the peripheral surface of the border of the velum in the trial model should follow the lines of the muscles along its zone at the moment of their greatest contraction, and should never be allowed more than barely to touch and yet close every irregularity of their contour. Later (after the first plate is vulcanised and worn a few days), if it is found needful to extend the border at any place to aid the patient in completely closing the palato-pharyngeal passage, it can be easily accomplished by scraping the metal cast.

To leave the largest possible opening at the borders of the veil when the muscles are relaxed is of the greatest importance to speech and healthful breathing. If these rules of construction are followed with a proper choice of the palato-pharyngeal zone, together with a perfect and sufficiently extensive fitting upon the nasal floor, the velum-obturator will be worn with perfect comfort, safety and unconsciousness of its presence from the very start, and without a supporting plate in most instances. Furthermore, patients under 20 soon learn to speak with such perfect articulation and tone that a stranger would not suspect their deformity.

There is no reason why the pharyngeal contact surface of the palate should be any wider than necessary to enable stability of muscular contact, nor does the central portion of the palate need to be thicker than is sufficient to stop the air. If the diaphragm be a thin plate of rubber or gold, valuable resonating and nasal breathing space will not be obstructed.

When the shape of the velum-obturator is finally satisfactory and it has been worn for a short time until better speech has been acquired, the appliance is vulcanised in hard rubber, which produces a clearer tone and resonance of speech, and can be considered permanent.

Now, gentlemen, you have heard all that will be of use to you in general practice as regards the treatment of cleft palate, both in co-operation with the oral surgeon and in prosthetic restoration of this defect.

Notice

MEMORANDUM as to the Endowment of and Regulations for the SIR ALFRED FRIPP MEMORIAL FELLOWSHIP at Guy's Hospital.

1. The Fellowship has been endowed by the Trustees of the Alfred Fripp Memorial Fund, by the direction of Lady Fripp, with the sum of £7,000, which sum has been paid over to the President and Governors of Guy's Hospital.

2. The Alfred Fripp Memorial Fellowship has been established for promoting the advancement of knowledge and research in psychology through the study of children in health and/or in disease.

3. Election to the Fripp Fellowship will be by the Board of Electors, consisting of the Physician for Diseases of Children, the Superintendent and the Dean of the Medical School of Guy's Hospital as *ex officio* members, and of five members co-opted by the *ex officio* members.

4. The Fripp Fellow will be allowed opportunities of study in the Children's Department of Guy's Hospital, and candidates must be men or women unmarried, and not more than 30 years of age, possessing a qualification to practise medicine or surgery.

5. Every candidate will have to submit with his or her application a scheme of advance study or research work, and the Fellowship will not be awarded on the results of competitive examination.

6. The stipend will be £300 per annum, and the Fripp Fellowship is to be regarded as a whole-time appointment, but may be held concurrently with a demonstratorship or registrarship.

7. The Fellowship will be held ordinarily for a period of two years, which period may be prolonged at the discretion of the Board of Electors for a further period not exceeding three years.

8. The appointment may be terminated by the Board of Electors if they shall be of opinion that the Fellow is not fulfilling the objects of the Fellowship.

9. The regulations governing the Fellowship may, after the expiration of not less than five years, be varied by the President and Governors with Lady Fripp's consent during her lifetime, and, after her death, with the consent of Alfred Thomas Fripp, F.R.C.S., if he shall survive her.

Hodgkin and the Physical Society

PROFESSOR R. H. HODGKIN, of Queen's College, Oxford, recently lent to Sir William Hale-White a packet of manuscript by Thomas Hodgkin, the discoverer of Hodgkin's disease. Among the papers were two Presidential addresses he gave before the Physical Society about a hundred years ago. Professor Hodgkin has kindly given us permission to print these. Hodgkin himself had previously read papers before the Physical Society, and in 1822 he communicated one on the stethoscope, for in that year he had been to Paris to study under Lænnec, who published his famous book on Auscultation in August, 1819, when he gave to the world his discovery of the stethoscope, which discovery he had made in 1816. There can be little doubt but that the introduction of the stethoscope at Guy's was due to Hodgkin's paper read at the Physical Society.

ADDRESS TO THE PHYSICAL SOCIETY,
GUY'S HOSPITAL
(Paper watermarked 1831)

GENTLEMEN,—We are met this evening to open the 62nd Session of the Physical Society, and whilst I am fully sensible of the honor which has been done me by placing me in the position which I now hold before you, I must tell you that I feel myself taken by surprize having neither expected nor desired it. I regret that another individual had not been selected in my stead, not from the want of respect to you or of attachment to the Society in whose prosperity I feel a lively interest, but because I think that the interest of the Society might have been more promoted by the selection of a more able and distinguished individual, whilst those exertions which it is a pleasure for me to make in the service of this Society are better suited to a less prominent situation in it.

Tho' it is generally expected that a few words should be addressed to the Society from the Chair, I do not conceive that much can be required to exhibit the objects and importance of meetings like ours. I will not therefore trouble you with a lengthened address, but there are two points upon which I think it will be wrong in me to be silent. In the first place, in the name and on behalf of the Society I would thank you, the senior members of it, not only for the honor and respect which you have shewn to it, by favoring it with your presence this evening, but I would thank you cordially in anticipation for attendance and co-operation at our future meetings during the session upon which we are entering, in order that you may feel a kind of debt, however small, which you may recollect that we are looking to you to repay with interest. It is to you, my senior friends, that we look for those practical remarks which give so much value to the meetings of this Society. It is to you that we look for the communication of those facts which your extensive practice and observation bring to light, and which give an unceasing interest to our profession. We look to you not only for information and assistance in the course of our discussions, but also to your example to excite and sustain the zeal and diligence of our junior friends.

Longum iter est par precepta breve effican par exempla.

In the second place, let me urge on you, my junior friends, the important advantages which are offered to you by this Society, and point out the course by which you may obtain them. Though freely offered to you, they will not be yours without some exertion. First, the discussions of a society like this will exhibit the subjects which come before you in a variety of points of view. They will expedite your acquaintance with the various and sometimes conflicting opinions which are entertained on many subjects connected with our profession, and as this will be accompanied with the reasons on which these opinions are founded, instead of being discouraged and perplexed by these discrepancies your judgment and discrimination will be exercised. You will become less exclusive, whilst you may observe that there is much to deserve attention on both sides of a question.

By the kind of collision which takes place in a spirited yet temperate discussion, bright ideas are sometimes elicited like sparks from the collision of flint and steel, and if not actually new, they may be new to you, or at least present themselves to your minds in a mode which they have never done before. They may become the commencement of a train of important reflections ; the spark may kindle a glowing fire.

But I am not to consider you the silent hearers of our discussions. It is to be hoped that you will take a very useful part in them, and in order to do this, you should learn beforehand what is to be the subject of the evening's conversation, and diligently read and reflect upon it. In this as well as many other objects of your study you may derive great and important assistance from the very valuable Library which I must take this opportunity of informing you is placed in the Reading Room of this Hospital for the use of the

pupils of this School. Whilst it is very far from being the object of this Society, to encourage anything like oratorial display, or to promote a propensity to speechify, it is specially designed to give to the young and rising members of the profession an opportunity of acquiring by exercise the habit of expressing themselves with clearness and precision, and without that painful distress to their own feelings which is liable to make the public attempts of unpracticed speakers a misery both to themselves and their hearers, and very likely to fail in producing the effect designed. I would wish you to be warned by my own experience. When I was myself a pupil, I made a point of being a diligent attendant of this Society, but I did not overcome the reserve which withheld me from taking a part in the discussions in which I felt an interest. Had I acted differently I should probably have acquired a facility of expression which might have enabled me now to deliver my lectures more easily to myself and more acceptably to you, and I should not have felt to the same degree as I now feel the necessity of soliciting your indulgence on the present occasion.

We look to you, my younger friends, to supply us with a considerable proportion of the subjects which are to come before us. In the collection and preparation of these you will obtain as much advantage for yourselves as you will confer upon the Society. These communications may be of different kinds, but they should be well chosen, and delivered in or announced to our excellent Secretary at least a fortnight before they are to be discussed within these walls.

These communications may either consist of regular dissertations calculated to occupy one or more evening's attention, and afterwards to be placed in our Library for the instruction and emulation of your successors. Or, secondly, of cases of particular interest which you may have the opportunity of carefully watching. Of these I trust we may have a good supply furnished by the zeal and talent of our Clinical Clerks and Surgical Dressers, whom I now expressly invite to render us this important service. Thirdly, we shall also be glad to receive the announcement of any interesting facts connected with Anatomy, Pathology, Physiology and Therapeutics.

Let me here take occasion to remark that, amongst the numerous subjects which we shall be glad to have brought before us there is a great diversity as to their susceptibility of discussion, and I would suggest with reference to our future proceedings that when a subject, however interesting, has been laid before the Society which, from its own character or from the state of meeting at the time, does not seem likely to lead to animated and useful discussion, we should do well to dismiss it and pass to another subject.

I conceive that the Society has in former years suffered loss from not adopting this course, which you will see cannot be taken unless there be an adequate supply of communications on hand.

Perhaps I cannot, in conclusion, offer anything better calculated to excite your exertions or to sustain your zeal both in preparing papers and in participating in our discussions than a slight modification of a motto adopted by one of the ornaments of our profession, the great natural historian Linnæus :—

Dum spes est et paralus favor audere non dedecet.

T. H.

Presidential Address to the Physical Society at Guy's Hospital, 1834.

GENTLEMEN,—This evening commences the 64th Session of the Physical Society of Guy's Hospital, and I could have wished that it had fallen to a more distinguished individual to address you on the occasion, for I feel persuaded that there are many gentlemen eligible to the post of President to the Society who would occupy it with greater effect and advantage than I can do. Nevertheless, as the favourable opinion of my friends has given me this distinction—which I neither courted nor expected—I will now solicit your attention to a few remarks which I have to offer on the present occasion, on which I wish to claim the attention both of my friends and fellow-members whom on former occasions I have had the pleasure of seeing and listening to within these walls, and also that of the younger members of our profession to whom not only this Society, but the pursuits of a medical school may be altogether new.

I shall first address myself to the latter class. It appears to have been the laudable object of the founders of this Society to furnish to the students attending the school of this hospital a relief from the routine of a daily attendance on lectures and cases, which, whilst possessing the charm of relaxation, so far from being a distraction from study, might be a powerful incentive to it. They agreed that the members of the Society should, in rotation, bring forward dissertations and cases, and that the canvassing of the statements and opinions contained in them should exercise the acquirements, penetration and reflection of the members generally. The accumulated dissertations on the shelves of our Library attest the industry and talent which this Society has already called into exercise, and those who have known this Society the longest can tell you that the excellent discussions which they produced called forth

practical observations, lucid views and lively wit, which have left a lasting impression.

The continued existence of this Society for upwards of half a century may be admitted as a presumptive proof of its advantages, and I may confidently appeal to the proofs afforded by similar institutions attached to other medical schools that the advantages to be derived from them are neither trifling nor imaginary. The Medical School of Edinburgh in the energy of its youth, when its own reputation and that of its professors was yet to be established, saw the commencement of an association for medical discussion, of which Cullen, Whytt, Black, Monro and others whose names have now become classical in our profession were the active members. That little association shook the foundations of the Boheravian theory and laid those of the Royal Medical Society of Edinburgh, which has continued to flourish to the present time and is not without reason regarded as one of the greatest advantages which Edinburgh presents to attract students to its medical school. But there are no advantages in the Medical School of Edinburgh which the Physical Society of Guy's Hospital may not also offer.

As some of you may not be aware of the constitution of this Society, I may inform you that all the pupils attached to this School are entitled to attend and participate in its discussions, and that the fees and fines formerly required are no longer exacted—that dissertations or theses and narratives of cases well selected and detailed are expected to be produced by the members, who are to deliver them to the secretary in the manner pointed out in the printed regulations. On these productions will be founded the claims of the members to those diplomas or testimonials of distinction which at the close of the session will be given as the reward of merit.

Although it is my firm persuasion that our meetings may be productive of interest and profit to every class who may attend them—they may, on the contrary, become dull, spiritless and fatiguing. In order that they may maintain the former character several conditions must be fulfilled. They must be supplied with materials which are not only good but interesting, and embodying points which admit of a difference of opinion; these points need not only to be furnished in the pages, but they should be taken up in the discussion which ensues in preference to the other points which the paper may contain. If we can have papers containing such points produced at our meetings, and if our attention be called to them when so produced, we shall have secured two important elements of success. But we must also have the presence and assistance of those who may be willing to engage in and maintain discussion in a temperate yet spirited and interesting manner. This important point will be greatly promoted by the numerous and regular attendance of members. Numbers will not only increase the chances of having amongst us those who may be able and willing to discuss the subjects which come before us; they also tend to inspire and sustain a degree of ardour which is as favourable to discussion as the sight of empty benches is calculated to chill and damp it.

In order that you may be induced to attend these meetings, allow me briefly to explain some of the advantages which you may derive from them. The commencing students to whom every point connected with their profession is a novelty, must inevitably hear both in the papers which are read and in the discussions which follow many things which they cannot fully comprehend. Even these will be of use by suggesting to their minds questions to be solved by reading or by application to those further advanced than themselves. There will, however, be many points which they can easily understand, but which might remain unknown to them were their attention confined solely to elementary lectures and the reading necessarily conjoined with them. It gives me pleasure to acknowledge that I was myself very sensible of this advantage derivable from our discussions; for, having commenced the purely medical part of my education at a later period of life than some of you have done, I found it very important promptly to gain a knowledge of the wide range of the interesting field in which we are engaged.

To those who, before coming up to their medical school, have been laboriously pursuing a course of self-education and wading through many volumes of ancient or modern medical literature which they have probably found obscure or contradictory, the well-managed discussions of a society like this will be extremely useful not only by correcting erroneous views which they may have formed, but by giving a value to the erudition which they have acquired they will help them to retain and profit by that which their premature reading would have left useless and fugitive. To those whose previous occupations may have unfortunately thrown them into the way of much practice with little theoretical knowledge of the principles of their profession, a society like this must be highly beneficial. To such the details and restraints of a regular course of elementary study must be dry and irksome. In these meetings they will glean some valuable practical information in a manner congenial to their taste and at the same time they will see the importance of that

theoretical knowledge which they may have despised, and in listening to the excellent and highly creditable productions which we sometimes have the pleasure of receiving from our more accomplished students, they will receive that powerful and useful stimulus which every generous individual must feel when he compares himself with those of the same class with himself, but by whom he has been greatly outstripped. But it is not merely as a corrective of the faults and defects which the pursuits of the student prior to his coming to the Hospital may have occasioned that this Society may be of essential service to him. Questions which interest and divide the medical profession generally are sometimes brought forward and canvassed; at other times the cases occurring in our wards are related, their symptoms analysed, and their treatment explained. By both of these means the course of study must be assisted, but by the last especially. The powers of observation and reflection will be exercised, and the views and doctrines of our medical and surgical teachers will be better understood and more strongly impressed. In connection with this point we may derive the most important assistance from the Clinical Society which exists in this Hospital—a society which I cannot too strongly urge you to join with a firm and persevering resolution to unite in its labours.

There remains yet another advantage which I cannot refrain from adverting to. Whilst it should be constantly kept in view that this Society is not a debating club, and that its meetings are not to promote and exercise rhetorical display, it is very certain that they may be the means of giving to those who take a part in its discussions a facility in the public expression of their sentiments which it is very desirable that the members of a liberal profession should, to a certain degree, possess. The exercise of mutual forbearance and caution to avoid offence in our expressions towards those who may differ from us in sentiment, and the habit of submitting to those restraints which common politeness as well as the usage of civilized society impose upon the discussions of those who profess to be gentlemen, can scarcely fail to produce a beneficial influence which may be felt on future occasions by those who may be called to meet their neighbours and fellow-citizens in deliberative assemblies. This is an advantage in which those who are merely hearers as well as those who speak may participate. On such occasions we should one and all remember the words of a Latin poet: *Procul omnis esto clamor et ira.*

I have, perhaps, too long detained you from entering upon the discussion for this evening, but I should do violence to my feelings were I to sit down without addressing a few words to our senior fellow-members—to thank them cordially for their presence amongst us this evening, and I would fain hope availingly to entreat them to repeat a like favour on future occasions. Much of the interest and a greater portion of the advantage of these our meetings is reasonably to be expected, and, therefore, reasonably to be hoped for from your support; and I cannot but anticipate but that with your co-operation our meetings may possess sufficient interest to repay you for the trouble and exertion of coming here once a fortnight. It is generally known that the meetings of one of the most active and flourishing scientific societies of the present day are well attended by members who have many miles to travel to be present at them. The meetings of the Geological Society derive much of their interest and animation from a Buckland from Oxford and a Sedgwick from Cambridge. I may, therefore, flatter myself that I am not making a too exhorbitant request in soliciting that our discussions in relation to the microscosm of the human body may bring together some of our valuable members who may not be more remotely placed than Bishopsgate Street or Bond Street, Spring Gardens, or some of the nearest villages to which London practitioners have followed their patients. With assistance from these quarters our meetings would equal, if not exceed in interest and importance, those of the best by-gone days of this Society.

The Physical Society

A MEETING of the Physical Society was held on Thursday, March 10th, with Mr. David Erskine in the Chair. An exceptionally interesting collection of cases was assembled in the Massage Department. A discussion of the cases followed in the College Smoking Room.

Mr. BOUCHER outlined the history of a boy, aged 11, who was admitted to the Surgical Wards with pain in the right loin and spasm of the right psoas muscle. He had recently recovered from an attack of tonsillitis. There was slight pyrexia with a white count of 18,000. X-ray examination showed no bony disease in the spine or right hip. At operation an abscess was found behind the right psoas muscle, and the pneumococcus was grown from the pus.

Mr. Bruce Pearson wanted to know what diagnosis was made in the first instance, but no one could enlighten him. The discussion on this case was undistinguished.

Mr. KING related the story of a boy, aged 21, with enlarged left-sided cervical glands. He had lost weight and was getting weak.

A gland had been removed from his neck at a previous operation at another hospital and was said to be tuberculous, but Mr. King thought that the diagnosis was probably Hodgkin's disease.

Mr. K. Gilchrist pointed out the frequency with which Hodgkin's disease was preceded by other chronic inflammatory changes. Mr. Bradbeer inquired if the temperature chart showed any abnormality. Mr. King replied that it was subnormal, but the patient had only been in the ward two days. Mr. Erskine was surprised that a gland had not yet been removed for section.

Mr. DENTON gave the details of a woman, aged 46, suffering from morning sickness, loss of weight, asthenia and who was becoming pigmented. These symptoms had started rather suddenly a year ago. Her blood pressure was 80/65, Hb 85 per cent., and the blood sugar .105 mg. per cent.

Mr. Forman said that the blood sugar was often on the low side in Addison's disease, and thought that the vomiting might be hypoglycæmic in origin. He had once treated a case with intravenous glucose and insulin, but, unfortunately, it was found at autopsy that his case was not Addison's disease.

Mr. King was struck by the sudden onset, and thought pellagra should be considered. Mr. Bradbeer said that cases of acute Addison's disease had been described with rapidly fatal results. It was also possible that there were cases which showed symptoms of Addison's disease which were possibly due to a functional exhaustion of the adrenals.

Mr. Bruce Pearson inquired if arsenical poisoning had been considered, and Mr. Denton suggested that the hair should be analysed. Mr. Owles discussed the results of treatment with " Cortin." He did not think the prognosis was improved, but the symptoms, especially the loss of appetite and vomiting, were definitely relieved. Mr. K. Gilchrist was appalled at the expense of " Cortin," and Mr. Erskine said that he found the exhibition of " Mist. Acidi Co." gave very favourable results.

Mr. GREENHALGH presented the case of a man, aged 60, with an ulcer in his palate and a lesion of his aorta. He was known to have heart disease as long as 40 years ago. The Wassermann Reaction was negative. The ulcer had been present for about six months. Mr. K. Gilchrist had inside information that the patient had a congenital coarctation of the aorta, and Mr. Bruce Pearson explained how to diagnose the condition. Mr. Greenhalgh said the ulcer in the palate was neoplastic in nature.

Mr. OWLES showed a case of polycythæmia rubra. The patient was of the typical appearance and had a large spleen. He had been blind in the left eye for two years, and the left disc showed optic atrophy. The Hb was 140 per cent., red count 5,000,300, white count 30,000 There was also a trace of albumen and sugar in the urine. Mr. Gilchrist thought the eye lesion was due to a thrombosis of the central artery of the retina, and asked for some explanation of the frequency of thrombosis in association with this disease.

Mr. Owles proposed to treat this case by phenylhydrazine-hydrochloride or gastrectomy to produce a secondary anæmia. Mr. Erskine was so shocked by this brutal suggestion that he closed the discussion of the case.

Mr. DICKENSON gave the history of a woman, aged 60, who was known to have had diabetes for four years. A cataract had been removed from the right eye, and the vision in the left eye was now defective. She also had signs of an impaired blood supply to the lower limbs. Six weeks previously she had an attack of abdominal pain in the left inguinal fossa lasting 36 hours. There was a tumour to be felt in the left inguinal fossa, and the X-ray showed a large filling defect of the pelvic colon. The fæces had not been examined for blood, and so Mr. Crowther-Smith discussed the significance of blood in the stools.

Mr. Bradbeer inquired if the X-rays showed any signs of diverticulosis; he thought that the diagnosis lay between diverticulitis or a carcinoma, and the attack of pain was due to a sub-acute perforation of the colon. He suggested that a cæcostomy under local anæsthesia should be performed.

Mr. Bruce Pearson thought the tumour came up out of the pelvis. He was quite opposed to a blind cæcostomy, and wanted a laparotomy performed. Mr. D. W. James woke up and asked if a rectal examination had been performed, and went to sleep again. Mr. George Gilchrist wanted a gynæcologist to see the case.

The last case was shown by Mr. HOLDEN. A man, aged 60, had suffered from intermittent hæmaturia for four years. No diagnosis was made until a lump developed on the inner aspect of the left thigh. This was at first thought to be a varicose vein, but it eventually broke through the skin and a section was made, after which a confident diagnosis of hypernephroma was made.

A discussion on the pathology of hypernephromata was led by Mr. K. Gilchrist, but Mr. Erskine got so bored that he closed the meeting.

Dr. Charles Patrick Higgins

AN APPRECIATION

THE notice in the *Guy's Hospital Gazette* of the death of Dr. C. P. Higgins at Brisbane constrains me to write an appreciation of my old friend.

In the nineties there was a little band of men of kindred spirits who congregated—who in spare time would drop into each other's company. Most of them, I think, cared more for life and literature than medicine and surgery. Still I believe four became H.P.'s; one of the clan was known to us as Patrick.

Higgins could not be classified—he belonged to no school, and in his way was wayward intellectually. He was blessed with a gift of humour, and in an engaging manner could take a comprehensive view of men and things. Sometimes he would contribute to the *Guy's Hospital Gazette*, and on one occasion some verse—he was a general practitioner in the country (in imagination), thinking of the fellows walking the Colonnade. "Have you read 'Bess of the Turnip Fields'?" he asked me one morning. Then "We must have a photographic group of the lunatics." On my inquiry, he replied: "You, Citizen Salter, Hopkins, Allan, Brickdale, O'Neill, Stoner . . ." I can see him now, lining us up with amused satisfaction before falling in. And to see him as of yore, entering the Smoking Room, 6 feet tall, the head turned a little one side, sometimes with a grave face, sometimes with a smile of mischief to tell a tale.

But Higgins could be serious. Walter Pater's "Marius" and "Plato and Platonism" appealed to him. He shared my belief in John Morley, and on Morley's passing he wrote to me from Queensland, "We shall not look on his like again." And of Patrick himself we might say:—

"I am the owner of the Sphere,
Of the Seven Stars and the Solar Year;
Of Cæsar's hand and Plato's brain,
Of Lord Christ's heart and Shakespeare's strain."

Like Brickdale, he died in the Roman Catholic faith. How strange is man's voyaging! But, Patrick, "Good-night." "The old name sounds so dear." Yes, "I remember the road, and I noticed the road is unalter'd."

RICHARD GILLBARD.

36, Dean Road,
Willesden Green,
N.W.2.

Landon Out-Patient Tea Fund

STATEMENT OF RECEIPTS AND PAYMENTS for the year ended 1st March, 1932

RECEIPTS	£	s.	d.
To Donations and Collections (as per list)	69	7	0
„ Landon Trust Fund—			
Interest received to 31st December, 1931	2	17	7
„ Interest on Invested Funds and Deposit	11	6	11
	83	11	6
„ Balance, being Excess of Payments over Receipts	13	5	3
	£96	16	9

PAYMENTS	£	s.	d.
By Provisions, etc.	28	0	10
„ Band	16	16	0
„ Films (Hire of)	10	0	0
„ Gifts of Toys, Clothing, etc.	22	10	0
„ Police Fees, Gratuities, etc.	8	3	9
„ Printing, Postages, etc.	5	11	2
„ Decorations, etc.	5	15	0
	£96	16	9

BALANCE SHEET, March 1st, 1932

LIABILITIES	£	s.	d.
Accumulated Funds—			
Amount brought forward from last Account	409	13	4
Less—			
Excess of Payments over Receipts	13	5	3
	£396	8	1

(Signed) BERTHA MARTIN,
Treasurer.

ASSETS	£	s.	d.	£	s.	d.
Investments—						
£300 5 per cent. War Loan Bonds, at Cost				300	0	0
Cash at Bankers—						
Deposit Account	75	0	0			
Current Account	21	8	1			
				96	8	1
				£396	8	1

Audited and found correct.
(Signed) W. J. CURRY,
March 8th, 1932. *Corporate Accountant, Auditor.*

Correspondence

The Nurse Difficulty

To the Editor of the GAZETTE

SIR,—" Passim " for March 5th discusses the present great difficulty in obtaining nurse probationers. The cause is attributed to the smallness of the salaries offered and to the lack of social amenities. An elderly practitioner assigns another cause—one very troublesome to overcome. The present financial conditions are rapidly reducing the size of all households and eliminating domestic servants. It is well-nigh impossible for the folk to be sick at home, as pockets are unable to support the fees of nurses or to accommodate them in their small flats. Hence large sections of the community go to County Council infirmaries or hospitals. Therefore the demand for nurses' services, notably maternity, in the homes of the people is steadily diminishing.

As I have confirmed from several experienced nurses lately, it is practically impossible for the great bulk of nurses to earn their living in private practice. Parents of girls are learning these adverse influences and are discouraging girls from entering a profession that holds so little ultimate prospect when their daughters leave hospital fully trained. With a vanishing birth-rate in the upper and middle classes and a greatly diminished death-rate, the quantity of people needing help throughout the year is continually decreasing.

Yours, etc.,

VAUGHAN PENDRED.

Crohill,
East Sheen, S.W.

Reviews

Clinical Notes on Disorders of Childhood. By D. W. WINNICOTT, M.A. (Cantab.), M.R.C.S. (London). *Price*

THIS small book on disorders of childhood has attacked the subject from an entirely original and unique point of view. A large part of the book is devoted to the psychological aspect of children's diseases, a factor which we feel has not been given its important position which it undoubtedly holds in the causation of the disorders of childhood, in any book on the subject ever written before.

The first part of the book deals with the history-taking and physical examination of the child, stressing the importance of being patient and obtaining a full and correct history. This is followed up by a few brief notes on the more important diseases of childhood, and finally the psychological aspects of pediatrics.

In this book we can recommend a thoroughly readable treatise on the disorders of childhood and advice on some difficult problems which every general practitioner is bound to meet in his practice.

Medical Emergencies. By CHARLES NEWMAN, M.D., M.R.C.P. Published by Messrs. J. & A. Churchill, Ltd., 1931. *Price*

THIS book has been produced as a companion to " Surgical Emergencies in Practice." It is concisely written and contains much useful information in a small bulk. It is difficult to define a " medical emergency " precisely, and the author has allowed himself wide latitude in his interpretation of its meaning.

There are chapters on Poisoning, Coma, Convulsions, Circulatory Failure, Hæmorrhage, Asphyxia, the Colics, Sudden Insanity and Miscellaneous Emergencies. The essentials of diagnosis are set down, and the chapter on Coma is particularly good.

A more detailed account of blood grouping would enhance the value of the book, and whereas a whole page is devoted to a description of direct blood transfusion, there are only six lines on the commonly practised citrate method.

It is curious that lead is not mentioned in the chapter on " The Colics."

On the whole, there is very little fault to find either with the arrangement or contents of the book, and it should prove useful both to qualified men and those up for their Finals.

Sex Hostility in Marriage. By Th. H. VAN DE VELDE ; translated by H. MARR, M.A. (Cantab.). Published by Messrs. William Heinemann (Medical Books), Ltd. *Price* 17*s.* 6*d.*

THE second volume of Dr. Van de Velde's triology on married happiness has been ably translated by Mr. Hamilton Marr. Whereas the first volume was limited to members of the medical profession and associated callings, in this the author addresses the intelligent public as a whole, and in particular the married and those contemplating marriage.

The object of the book is to help readers to avoid, deal with and overcome the difficulties which frequently arise in the sex problems of married life, which are so often pitfalls in the progress of the mutual happiness and sympathetic understanding that is so essential for the successful continuance of the married state.

The work is arranged in two sections, the first of which deals in a comprehensive and easily understandable manner with the pre-marital and post-marital psychological processes which lead to the onset of aversions in both sexes. The contrast between masculine and feminine physiology, emotional capacity and instincts is discussed, and the section ends with a chapter showing how the concomitant factors may, and frequently do, lead to the onset of actual antagonism.

Section II commences with an apologia of marriage and goes on to discuss the prevention of the onset of hostility—in the first place by the right choosing of a partner considering four aspects: sentiment, circumstances, health and character—and in the second place by the adaptability and insight of both partners for their mutual well-being. The finishing chapter deals with the methods of treatment of hostility both by the physician and by the hostile partners.

The principles and reasoning used throughout the book are based on the most recent and authoritative research, and one feels amply justified in recommending the volume to both the doctor and layman.

Nursing News

ON Thursday, 10th March, Dr. Fawcett gave a delightful and interesting lecture to the Nursing Staff on "The General Nursing Council. Dr. Fawcett pointed out the benefits accruing to the public and the nurse through State Registration. The conditions existing before State Registration were outlined, showing what enormous strides had been made since the Crimean War. It seems difficult to realise that as recent as 1891 a Royal Commission on Nursing recommended a minimum of three years' training for nurses, and that even then all hospitals did not adopt this. Many interesting and unfamiliar facts about the State Register were told. It costs £1,500 each year to compile. About 20,000 alterations are made in it yearly. It usually contains about 70,000 names.

Dr. Fawcett then spoke of the educational value of the General Nursing Council. It is empowered to make certain rules and regulations concerning the training of nurses and to visit the various approved training schools in the country. These visits keep the Council in touch with the hospitals and are a source of mutual pleasure and profit. The value of the one postal entrnace examination was emphasised.

Dr. Fawcett paid a very warm tribute to the College of Nursing for all it did to obtain State Registration, and it was gratifying to be reminded of Guy's share in its formation. Sir Cooper Perry, Dame Sarah Swift, and, later, Miss Haughton were constantly being asked for advice concerning the training of nurses, and so realised the need for a central organisation. The story was, that some wealthy gentlemen of the City were arranging the affairs of the nursing profession. They were also Governors of Guy's Hospital, who, with Sir Cooper, Dame Sarah and other prominent members of the medical and nursing world, were evolving a scheme for the formation of the College of Nursing.

Dr. Fawcett concluded with an appeal to all nurses in training to join the Student Nurses' Association and help to maintain a high standard, and with a warning regarding the dangers of over-legislation in the nursing profession.

The Matron, in proposing a hearty vote of thanks, added that Guy's Hospital was still working for the welfare of the nursing profession through Dr. Fawcett, who was an active member of the General Nursing Council and Chairman of the Finance Committee.

Sport

Rugby

Guy's v. Plymouth Albion

ON Saturday, February 27th, the Hospital visited Plymouth and were soundly beaten by 3 placed goals, a penalty goal and 3 tries (27 points) to nil.

The meeting of these two teams has always been considered one of the outstanding fixtures of the year, and it was most unfortunate that Guy's were compelled to field such a weak side, consisting, as it did, of only four members of the First Fifteen who had played against St. George's the previous Thursday and the rest members of the "A" or

"B" Fifteens. In fairness to the home side, it should be mentioned that they were without several of their leading players, including Dyer, the full-back, and Sparks and Gummer from the pack.

The margin of points against the Hospital indicates that it was an overwhelming defeat, but, although Plymouth were the superior side and deserved their success, they were not the masters of the situation as the score suggests.

During the first half, then the Albion established a lead of 21 points, they had the assistance of a strong wind, and, curiously enough, the bulk of their scoring was obtained when Guy's had the ball.

On a hard ground, the home side handled the lively ball with commendable accuracy, and, ably led by their captain, E. Stanbury, they played a fine open game which had the Hospital backs guessing all the time.

Stanbury laid the foundation for the Albion's success by registering their first eight points—firstly, by converting a penalty, and a little later by scoring a try behind the posts, which he converted. After this, Plymouth were irresistible, and further scores came when Davies cut through from the blind side of the scrum to register a try, which Stanbury converted.

Five minutes later the combined efforts of Gormley and Parker put the Albion further ahead, when the latter gathered a bad pass and, running strongly on the touch-line, sent in Gormley for an unconverted try.

Before the interval, Rowe forced his way through a crowd of players and increased Plymouth's lead by a try, which Stanbury converted.

After the interval, Guy's offered much stronger resistance, and judicious touch-finding gave them a territorial advantage, but, owing to the keen tackling of the home side and the lack of finish by the outsides, they could not press home their attacks, and eventually Plymouth scored again as the result of a splendid movement between their back division, which carried play from one end of the field to the other and ended when Davies touched down for a try, which was not converted.

Near the end, Gormley completed the scoring by registering another try, from an opening made by Davies.

Team.—W. J. R. C. Morgan; F. H. E. Beckett, P. C. Alexander, J. E. C. Peacock, G. G. G. Rees; G. Walker, V. H. Bowles; R. G. Hunt, C. W. Outred, A. G. Heberlein, R. G. Drummond, E. Garch, D. M. Leeming, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Old Leysians

AT Wandsworth on Saturday, March 5th, Guy's were successful by a placed goal and a try (8 points) to nil. The Hospital fielded their full back division, but the forwards lacked the services of Batchelor, Morgan and Robin, all of whom were still on the injured list. On the other hand, the Old Boys were not quite at full strength, but their substitutes played magnificently and were largely responsible for keeping the score so low.

Although the Guy's pack did not play up to the form exhibited in recent matches, Eustace sent out a splendid service from the base of the scrum and Windsor Lewis, who was in excellent form, gave his threes plenty of opportunities for opening up the game.

The strong running of Lewis, Giesen and Alexander was a feature of the game, but there was a tendency on the part of the centres to hang on to the ball too long. Had they passed out to their wings a little more frequently, there is no doubt that Guy's would have increased their score by several points.

The Old Boys put up a splendid fight throughout the game, and finished so strongly that it would have caused no surprise had they scored on two occasions at least.

Kicking off with the wind against them, Guy's immediately dashed to the Old Boys' 25, but were sent back as the result of a clever kick to touch by Brown. From the line-out their forwards carried out a spirited raid which Guy's found difficult to check, but eventually the ball was sent to Alexander, who ran through to the 25 line before he was tackled.

For a time Guy's held the upper hand and their outsides frequently threatened danger, but the tackling of the home side was sure and effective. Eventually they drove the Hospital back, and should have scored, but their outsides lacked the necessary finish, and Clegg, who was very safe at full-back, had no difficulty in clearing.

Just before the interval and following several good rounds of passing, O'Shea scored an unconverted try for the Hospital after Lewis and Johnson had made the opening.

After the interval, Windsor Lewis made a clever mark and, aided by the wind, found touch well inside the home half. The Hospital were now playing with plenty of dash and the backs participated in some excellent bouts of passing, but could not find a gap to break through. However, their persistency was eventually rewarded when Windsor Lewis scored a brilliant try, which Hogbin converted. Receiving the ball some 40 yards from the line, he raced towards the defence

and feinted to pass to the right; catching the whole of the defence on the wrong foot, he turned inwards and scored easily behind the posts—an excellent effort.

Inspired by this success, Guy's pressed hard, and in turn Giesen, who was particularly good, and Alexander made several good runs which nearly led to tries, but the Old Boys stuck to their task exceedingly well and in the closing minutes gave Guy's a harassing time. Kilner managed to get to the goal line and was only brought down with great difficulty.

Three or four scrums were formed five yards out and, with the Hospital pack tiring, it looked as though they would score any moment. Brown was a continual worry to Guy's, and his accurate kicking proved a great asset to his side, but he missed an easy drop at goal near the end.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; W. H. Lewis, R. J. Eustace; T. C. Outred, J. P. O'Shea, J. Cunard, R. J. Drummond, D. M. Leeming, C. S. Darke, R. A. P. Hogbin, A. R. Clarke.

Association

United Hospital Cup—First Round

Guy's v, Bart.'s

PLAYED at Honor Oak Park on Monday, January 25th. For their Cup-tie Guy's had two changes in the team—Evans in goal and Cantor at inside right.

The Hospital had an auspicious start, Marshall converting a centre by Musgrove after five minutes. Bart.'s retaliated and equalised after a further ten minutes, and this score was maintained until the interval.

Soon after the re-start Bart.'s took the lead, to the dismay of the home supporters, and continued to have slightly the better of the game. However, the Hospital pulled themselves together, bombarded the visitors' goal and obtained an equaliser, Woodiwis scoring from close in.

A typical Cup-tie battle now ensued, the ball going from one end to another in rapid succession. The home goal nearly fell twice; once, Evans making a brilliant one-handed save, and then Brummitt headed out from under the bar. The winning goal was obtained by Guy's very near the close, in a manner rather unfortunate for the visitors. A high shot was directed at goal, and Musgrove, following up, caught the goalkeeper in possession of the ball, and forced him to drop it, leaving Marshall with an empty net.

Inter-Hospital Cup—Semi-Final

Guy's v. U.C.H.

PLAYED on Saturday, February 20th. For this round, Guy's played Clough at centre forward and Colbert at inside left. Otherwise the team was the same as that which defeated Bart.'s.

U.C.H. won the toss and elected to kick against the wind. Guy's immediately attacked, and for some time the ball was kept in the U.C.H. half. The play then evened out, and the ball was swung from one end to the other. Guy's eventually took the lead, Musgrove scoring from close in after several shots had been blocked. U.C.H. were now strictly on the defensive, and on several occasions the Hospital were unlucky not to increase their lead, half-time arriving without further score.

After the re-start, U.C.H. attacked hotly, and only good defensive work kept them out. They equalised, however, in a rather unfortunate manner. The ball was sent well up the field and chased by their inside right Our defence, believing that the ball had crossed the back line, made no attempt to interfere. The opposing forward, however, hooked the ball back and shot into the net. The referee, although unsighted, awarded a goal. This reverse rather disheartened the Hospital, and U.C.H., attacking fiercely, scored two further goals—one from point-blank range and the other from the left wing.

Guy's, stung by this reverse, forced play into their opponents' area, and, ten minutes from time, Clough scored from a centre by Marshall. U.C.H. now had to defend desperately to retain their lead, but they were successful, however, full time arriving with no further score, U.C.H. thus winning 3—2.

Sailing Club

THE Commodore, Mr. W. H. Ogilvie, presided over the second dinner of the Guy's Hospital Sailing Club, which was held on Friday, March 11th, at the Hotel Jules, Jermyn Street. Some 26 members and guests were present.

In proposing the toast of the visitors the Commodore told us something about the present state of the Club and the interest in cruising of many of its members, and of racing conditions at Bosham.

Mr. A. R. Thompson, in replying, made several allusions to the Bosham mud and to sailing in general.

After this speech, W. H. Bradbeer was presented with the Ogilvie Cup for single-handed sailing. He then proposed the toast of the Club, coupled with the name of its first Commodore, Dr. Herbert French, who had done so much to start the Club successfully.

Dr. French, in reply, stressed the cruising aspect of the Club's activities. Later on, this talk of cruising induced Mr. Eckhoff to tell us how he bumped his head so hard on the cabin roof of the *Albatross* that Roche turned out to see what was wrong on deck!

The Commodore then explained to us why boats were called she, and whilst he was preparing a film of the Bosham Regatta some sea shanties, loud of chorus but somewhat weak of solo, were sung. Neither last nor least, the Dean sang us a song and told us some Scots tales.

Hospital Information, etc.

Pass List

L.D.S., R.C.S. ENG.
FIRST PROFESSIONAL EXAMINATION.
February, 1932.

PART I.
Dental Mechanics.

L. J. Bailey
K. C. Baker
W. F. Collyer
J. Entwistle
G. D. Fleetwood
N. D. Goldin
A. Gorton
G. M. Johnson
W. J. Littleton
D. F. Malt

PART II.
Dental Metallurgy.

C. M. Beales
H. Bradley Watson
W. F. Collyer
H. C. Davis
D. P. Fox
H. C. French
D. A. G. Greensted
R. J. G. Hayton Williams
R. L. V. Henderson
R. O. Holland
R. G. Hunt
E. L. Moll
P. V. Peatfield
C. A. Reynolds
F. A. Rogers
E. E. H. Sampson
K. L. Scott
A. G. Smith
K. G. Swiss
H. C. A. Weigheil
J. C. L. Wren

PART III (a).
Anatomy and Physiology.

C. M. Beales
F. N. Beken
R. S. Cook
W. G. C. Dickson
C. B. G. Elstob
J. F. Russell
H. Stewart
A. F. Town
W. E. Waite

PART III (b).
Dental Anatomy and Physiology.

H. R. P. Annett
W. G. C. Dimock
J. Entwistle
R. E. C. Farrant
E. J. Freeman
L. E. Gillham
A. R. Gillies
N. Hack
C. I. Hagger
F. C. Hampson
J. R. C. Hindle
L. B. Holmes
R. G. V. Houlson
E. C. Jenet
R. A. Johnson
G. D. Lloyd
L. G. Lyle
L. E. Marhsall
R. S. Martin
K. Morris
A. Pryor
H. P. Rees
D. Robertson Ritchie
J. W. Rose
G. J. Rubie
W. G. Scoble
L. B. Somerville Woodiwis
J. A. G. Starnes
S. R. Wallis
H. C. Walsham
T. Weiner
D. M. Wilson

Papers by Guy's Men

H. W. Barber. Significance and pathogenesis of certain dermatoses. *Pract.*, 1932, cxxviii, 209.

Sir E. G. Little. Pruritus. *Pract.*, 1932, cxxviii, 224.

G. B. Dowling. Eczema. *Pract.*, 1932, cxxviii, 299.

W. K. Wills. Diet as factor in ætiology of acne vulgaris. *Pract.*, 1932, cxxviii, 331.

L. J. Witts. Pathology and treatment of anæmia. *Lancet*, 1932, i, 495, 549.

A. G. Signy and R. D. Bruce. Umbilical diphtheria. *Arch. Dis. Childh.*, 1932, vii, 43.

P. V. Reading. Diagnosis of early acute appendix. *Gen. Pract.*, 1932, viii, 59.

R. D. Gillespie. Relation of nervous disorders in childhood to those in adult life. *Med. World*, 1932, xxxvi, 25.

Change of Address

H. F. Boosey, L.D.S., R.C.S. Eng., "The Macrocarpas," 10, Crowstone Avenue, Westcliff-on-Sea.

A. Hurston, L.D.S., R.C.S. Eng., 356, Finchley Road, N.W.3. *Hampstead* 1537.

Surg.-Comdr. H. L. Peregrine, M.B., M.R.C.S., H.M.S. *Excellent*, Portsmouth.

F. W. Sander, L.D.S., R.C.S. Eng., "Woodslea," Parkhurst Road, Bexley, Kent. *Bexley Heath* 293.

Births

RICHARDS.—On March 2nd, 1932, at the Congleton War Memorial Hospital, to Mr. and Mrs. E. H. Richards (née Kew), of St. Anthony's Drive, Newcastle, Staffs—a son.

BURGESS.—On Thursday, March 10th, 1932, at Clifton, Bristol, to Dr. and Mrs. Norman Burgess—a son.

MARSHALL.—On March 10th, 1932, to Helen, wife of C. W. Marshall, M.D., of Sturminster, Newton, Dorset—a daughter.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

NOT long ago, in the latter part of our student career, in deference to the wishes of the Examining Board, we attended a very instructive course in infectious diseases. One of the more lingering impressions of that period of tuition concerns the cases that arrive at fever hospitals misdiagnosed. Apparently such cases coming from a private practice, even when there is an obvious error in diagnosis, are kept in the hospital for one night before being sent away. Misdiagnosed patients, however, emanating from such an impersonal source as a general hospital are sent home or to an appropriate institution as soon as the correct diagnosis has been made manifest.

Now that we ourselves have reached the stage of sending cases to fever hospitals, we cannot help wondering how many of them are quietly sent home again with an amended diagnosis.

When on duty in the Surgery we diagnose in a patient some infectious fever with a greater or less degree of confidence, fill in several official documents, not, perhaps, without a justifiable grumble at the paltry remuneration thus gained, and hear nothing more about the case.

In medicine possibly more than in any other profession one can profit greatly by one's mistakes. It would therefore be of great educational value to House Officers if some scheme could be devised whereby they could receive confirmation (or the reverse) of diagnoses made in the Front Surgery.

A simple method would be to have some printed slips which the House Officer could address to himself and send with each patient he notifies. The Medical Officer at the fever hospital could then fill in the ultimate diagnosis and return it to the sender. Far be it from us, who at the present time are suffering from more than a sufficiency of form-filling, to impose similar obligations on our colleagues elsewhere. However, the mere writing of a diagnosis on an already stamped and addressed form would not, we feel, be considered too laborious an imposition, and would be greatly appreciated by all those who diagnose infectious diseases in the Front Surgery here at Guy's.

WE hear rumours to the effect that we are about to say farewell to the Hospital telephone, which is to be relegated to its well-earned position as a Hospital relic and replaced by a modern and more efficient instrument. For some time past the transmission of a message by the telephone has been a complicated and hazardous business, necessitating prolonged juggling with the numbers and immense patience. Following undesired connections with the Linen room, the Hospital kitchen, or the Works Department, the achievement of obtaining the correct number is frequently nullified by the sender of the message being unable to make himself coherent, or even audible, to the recipient at the other end, or the interjection of a cross-message may completely ruin what appeared to be a promising effort. Moreover, the production of an occasional electric shock from the apparatus introduces an element of excitement into an otherwise rather tiresome feature of hospital life.

Not only, however, will the installation of a new telephone be a benefit to House Officers and Hospital Staff, but also it will be blessed by patients. At the present time, the termination of the transmission of a message is conveyed to the occupants of the wards by a loud and prolonged buzz, which we feel cannot be conducive to the sound and undisturbed sleep required by the sick.

We feel sure, however, that the present telephone will take its place amongst the waxworks and other models of antiquity in the Museum, where it will remain an object of interest and awe for successive generations, and may even provide the American visitor with some humorous remarks for the lecture

which he will deliver on his return to the States. We suggest that the maintenance of a working model, which could be operated on the insertion of a penny in the slot, should provide a steady revenue for the Hospital funds.

WE regret to have to announce the death of Mrs. Philip Turner. Mrs. Turner, who was formerly Sister Bright and subsequently Matron at the Central Red Cross Work Rooms, died at 73, Wimpole Street, on March 21st. A Memorial Service was held in the Chapel on Thursday, March 24th, the day of the funeral. We should like to express our sincere sympathy to Mr. Turner in his sad bereavement.

WE should like to congratulate Mr. F. J. Steward, who, as representative of the Council of the Royal College of Surgeons, has recently been elected to the General Medical Council. This is not only a signal honour to Mr. Steward himself, but also to Guy's, for we are the only hospital to have two members of its Staff on the Council, the other member being Mr. Eason.

THE Annual Dinner of the Dental Society was held on February 27th at the Trocadero Restaurant, with Mr. G. B. Pritchard in the Chair. There were about 250 persons present, amongst whom were many old Guy's men, who took advantage of the opportunity to renew old friendships. Following the toasts and speeches, a most successful evening was concluded by some light entertainment, for which Mr. de Gruchy and his Hospital band provided the music.

AT their Street Collection on March 16th, the day of the Hospital Rugger Cup Final, students collected £511 10*s.* 1*d.* in aid of the funds of the Hospital. This sum was collected in approximately six hours, and the expenses involved were nil.

Obituaries

HELEN TURNER, O.B.E.

BY the death of Mrs. Philip Turner, Guy's has lost a devoted friend. In 1896 Helen Lambert entered the hospital as a probationer, and in 1899, after a few months as Sister Cornelius, was appointed Sister Bright. This post she held for seven years, her admirable work appreciated by doctors, nurses and patients alike. For the next two years Miss Lambert worked in conjunction with her friend, another Guy's Sister, at a surgical hospital at Nîmes, France—a piece of difficult pioneer work. In 1908 Miss Lambert was married to Mr. Philip Turner, then Assistant Surgeon to the hospital.

From 1915 to 1919 Mrs. Turner, as Hon. Matron-in-Chief of the British Red Cross Society's Central Workrooms at Burlington House, directed the activities of the large numbers of workers of all ages and capacities with splendid success; she also organised and superintended evening gatherings elsewhere of business girls who wanted to help. As always, she gave her utmost, not counting the cost, and she expected the best from all. "We would do anything for her" was a remark often heard in the workrooms.

In 1919 Mrs. Turner followed Mrs. Lauriston Shaw as Hon. Secretary of the Guy's Hospital Ladies' Association, and for nine years she carried on and developed the work of this body with quiet, untiring enthusiasm, always encouraging the members in their efforts to help Guy's. Two cots in Victoria Ward having been endowed in 1918 and 1921, Mrs. Turner was eager to go further,

and in 1922 she planned with great skill a garden fête at the hospital; this brought in nearly £1,900, which enabled the Association to endow two beds in the same ward. From that time the endowment of beds and cots has been one of the chief aims of the Association, and already ten beds and six cots have been provided for in this way.

Courage, cheerfulness, and a genial humour, marked features in Mrs. Turner's character, did not fail in the last few years, when arthritis disabled her so much, and she will be greatly missed by her many friends. The sympathy of all who knew her goes out to Mr. Turner in his loss.

M. F. F.

HERBERT GEORGE ASHWELL

WE regret to have to announce the death of Dr. Herbert George Ashwell, who, at the age of 74, died recently at Nottingham. Dr. Ashwell took the degree of M.R.C.S. in 1880, and three years later obtained the qualification of L.R.C.P. at Edinburgh. Following house appointments at Guy's, he held the positions of resident surgeon at Nottingham General Hospital and at the Great North Central Hospital, London. Subsequently he held the appointment of visiting surgeon at Bagthorpe Infirmary, with which he was associated for 40 years. Following his retirement in 1930, he continued in private practice in Nottingham. His death will be mourned by all who knew him.

Meningitis and Meningism

A Clinical Lecture delivered at Guy's Hospital, 4th March, 1932, by J. A. Ryle, Esq., M.D.

GENTLEMEN,—Some of you will remember having seen in my wards during the early weeks of the present year two cases of meningitis in small children, the one meningococcic and the other tuberculous, the first progressing satisfactorily to recovery after treatment with serum; the second, as was inevitable, ending fatally. Shortly afterwards I saw elsewhere, in quick succession, two further cases presenting the syndrome of meningeal irritation, but in neither case as a result of meningeal infection. This small group of cases not unnaturally set me thinking of the various conditions in which I had encountered the signs and symptoms commonly considered as peculiar to meningitis. It occurred to me that it might not be amiss to do some of this thinking aloud at a clinical lecture.

I propose to give you, first of all, a brief account of these four cases, together with a description of four others from among my files; secondly, to consider how far the case-histories were in agreement, in what respects they differed and what were the points of differentiation which led to the final diagnosis in each instance; and, thirdly, to extract from the whole series a common group of symptoms with a view to deciding, so far as we may, their specific import.

By way of introduction, let me remind you that we generally mean by the term "meningitis" a pathological state involving inflammation (generally an infective inflammation) of the meninges, and by "meningism" a clinical state suggestive of meningitis, but lacking such final proofs of meningitis as an increase in the cellular content of the cerebro-spinal fluid or the presence of organisms. As I shall hope to show, these terms, although sometimes used by the physician in a differential sense, are not contra-distinctive, for every case of active meningitis manifests meningism and (although this might not be so universally approved) every patient with meningism has, I believe, irritation of his meninges or a mild meningitis, even though this be not due to the presence of bacteria or proclaimed by the visible products of bacterial inflammation.

What are the symptoms and signs which accompany meningism and meningitis? Severe headache generally, photophobia frequently, vomiting not infrequently are among the patient's complaints. The vomiting and headache are probably symptomatic of the increased intracranial pressure rather than of the local inflammation of the membranes. Neck-rigidity in some degree, with head-retraction in extreme cases, and a positive Kernig's sign are the most important physical signs. Neck-rigidity is best tested for by inserting the fingers of the two hands behind the occiput of the patient and gently attempting to raise the head from the pillow so as to approximate the chin to the chest. Any pain so caused will be immediately apparent in the patient's face. Objectively, there is a sensation of stubborn stiffness or involuntary resistance, and the intended approximation of chin to chest is found to be prevented in varying degree. To elicit Kernig's sign we flex the thigh to a right angle with the trunk and then gently straighten the leg on the thigh. In a healthy child the leg will easily straighten completely. In older subjects it will

at any rate extend sufficiently to form a wide obtuse angle with the thigh. When the sign is positive a sense of fixed resistance, sometimes almost suggesting ankylosis, is felt as the knee reaches or just surpasses a right angle. If the pressure is continued pain is caused and the other leg is sometimes involuntarily flexed. Both with neck-rigidity and Kernig's sign there is some correspondence between the activity of the inflammation and the positiveness of the sign.

Now let us turn to our cases.

Case 1

A male baby, aged nine months, was admitted to Mary Ward on December 28th, 1931, with high fever, up to 106°, and rapid respirations. We were anticipating pneumonia, but no localising signs appeared until the fifth day, when convulsive twitchings of the right side and transient strabismus were noticed and a slight degree of neck-rigidity and Kernig's sign were demonstrated. A faintly turbid cerebro-spinal fluid under increased pressure was withdrawn by Mr. G. V. Steward, and the laboratory reported a polymorphonuclear increase and meningococci. Anti-meningococcal serum was given on six occasions intrathecally and the child made a good recovery, complicated only by acute iritis with hæmorrhage into the anterior chamber of the left eye. The history and course of this case suggest a meningococcic septicæmia with a delayed meningeal localisation producing only moderate symptoms. In the majority of cases of acute meningitis (whether meningococcic, pneumococcic or streptococcic) the physical signs are more pronounced than they were in this case.

Case 2

A boy, aged nine, was admitted to Addison Ward on January 14th, 1932, for fever and profound lethargy. His earlier life had been healthy, excepting for winter cough. At the end of November, 1931, he sustained a slight concussion. He was then well until Christmas, when he had pleuritic pain in the left chest. On Christmas Day he was quite happy, but on December 27th he was quiet and feverish, and thereafter remained subdued until January 11th, when he began to complain of occipital headache. On January 13th a lumbar puncture was performed by Dr. W. F. Hudson, of Banbury. On admission, he lay flat on his back with his eyes half-closed. Neck-rigidity and Kernig's sign were present, but in very slight degree. The abdomen was retracted. He resented examination, and when his night-shirt was raised to allow examination of the abdomen he tried to pull it down again with an irritable protest and grimace, exhibiting what has been described as "Stocker's sign." James Stocker, who was apothecary to Guy's Hospital for many years until shortly before his death in 1878, pointed out that this type of irritability distinguished cerebral cases from cases of illness with apathy due to the then prevalent "fever." The cerebro-spinal fluid was under pressure and clear, and an excess of lymphocytes with tubercle bacilli was reported. The boy became comatose with high pyrexia, and died on January 21st, 1932.

The mode of onset was very different in these two cases, acute with high fever in the first, insidious with increasing stupor in the second. The neck-rigidity and Kernig's sign were not pronounced in either, but less so with the less fulminating infection. The decubitus and Stocker's sign were most characteristic in the boy with tuberculosis, and the earlier history of a pleurisy gave evidence of the primary lung focus, later revealed at the post-mortem examination.

Case 3

In January I saw, with Dr. G. E. R. Lacey, a nervous and childless married woman, aged 42, who gave the following story. She had always been liable to headaches and fainting. In the previous week she had been busy looking after neighbours with influenza. Three days before the consultation, while at stool, she was suddenly seized with intense pain in the head. She managed to get to her bed and there lay, apparently unconscious, for two and a half hours, and two hours later she was still stuporose. The knee-jerks were exaggerated, and Dr. Lacey queried a left extensor plantar response. The temperature on the first day was 99. When I saw her she was rational and afebrile, but still complaining of headache. There was slight but definite neck-rigidity with a positive Kernig's sign. The left plantar response was definitely extensor. Her blood pressure was 200/130. She recollected that three months previously, when scrubbing a floor, she had been seized with a similar headache, which lasted some hours. I diagnosed "sub-arachnoid hæmorrhage," and, as she was so clearly improving, decided against a lumbar puncture. The absence of pyrexia after the first day and of serious constitutional disturbance opposed any acute form of meningitis, and the high blood pressure suggested the more probable pathology.

Case 4

A prosperous business man of plethoric type, who was known to have a high blood pressure, was noticed one evening to be a little peculiar in his behaviour. The next morning he vomited three times in quick succession and was dazed.

He was put to bed and remained there in a semi-stuporose condition for the next ten days. When I saw him in consultation with Dr. W. J. Montague he was lying with his hand pressed to his forehead, but did not admit to much pain. He was restive at night and required catheterisation. His temperature fluctuated between 99 and 101. There was distinct neck-rigidity with a positive Kernig's sign. We also noticed a slight weakness of the right arm and leg as compared with the left, and the finger-nose test was performed badly with the right hand. A lumbar puncture performed by Dr. Montague before my arrival showed an intimately blood-stained fluid, the blood being largely laked. The blood pressure was 190/110. Here the diagnosis of hyperpiesia with sub-arachnoid hæmorrhage and slight right-sided hemiplegic symptoms was confirmed by the lumbar puncture.

Sub-arachnoid hæmorrhage occurring spontaneously in a patient with high blood pressure is less likely to give rise to difficulties than the same accident in a child or young adult. Here, as Dr. C. P. Symonds* and others have shown, the hæmorrhage usually comes from a small aneurysm, either congenital or, in cases with infective endocarditis, resulting from embolism.

Case 5

In 1929 I saw at the Blackheath and Charlton Hospital with Dr. R. W. Warrick a boy, aged 14, who had been found unconscious in the lavatory four days previously. On admission, neck-rigidity was discovered and a lumbar puncture had been performed, giving a blood-stained fluid with no organisms. On recovering consciousness, he was found to have a right hemiplegia. Slight pyrexia continued for the next three days. Neck stiffness and Kernig's sign were well marked at the time of my visit. I noticed weakness with increased reflexes of the right arm and leg and a right extensor plantar response. The cerebro-spinal fluid that day was pale yellow and showed an increase of protein. The boy's previous good health, the abrupt onset and localising signs, and the changes in the cerebro-spinal fluid made a leaking congenital aneurysm an almost certain diagnosis. Within a few days of the accident he was cheerful and able to take food in a way which would have been most unusual in a child with meningitis.

Here, then, we have three cases of hæmorrhage on the surface of the brain causing the same leading symptoms which we have just considered in cases of infective meningitis. With a widely differing pathology we find headache, fever, neck-rigidity and Kernig's sign common to these conditions. I may remind you that hæmorrhage into other serous cavities, such as the peritoneum or a joint, may also closely simulate inflammation of their membranes. You will observe that in each of the cases of meningeal hæmorrhage some additional feature, such as abrupt onset (in two cases in the lavatory), high blood pressure or some indication of local cerebral damage was present to help in the differentiation from infective meningitis.

Case 6

In May, 1928, I saw on the tenth day of his illness, with Dr. J. W. Ensor, a boy of 17 years who had complained primarily of headache, which later became severe and was associated with pain and stiffness in the limbs. On the fifth day he tried to get out of bed and found that his legs would not support him. His temperature, which never rose above 101, was normal on the seventh day. The headache had departed, but I still found well-marked neck-stiffness and Kernig's sign. In addition, however, he had a flaccid weakness of both quadriceps with absent knee-jerks and left ankle-jerk and absent abdominal reflexes. The case was one of anterior poliomyelitis.

The cerebro-spinal fluid in acute poliomyelitis frequently shows a lymphocytic increase. We have here another example (although the main incidence of the disease is on other parts) of infection of quite another type which sometimes affects the meninges.

Case 7

A young woman was admitted to Mary Ward with general superficial adenitis due to an accidental infection with syphilis. After her first dose of N.A.B. she developed acute cerebral and meningeal symptoms, including severe headache, neck stiffness, convulsions and a slow pulse. The cerebro-spinal fluid showed an excess of lymphocytes. Later she developed a right-sided hemiplegia. After a long illness and intensive treatment with mercury, iodides and bismuth, all signs eventually cleared up. The Wassermann reaction of blood and fluid became negative, the cell-count became normal and she was able to return to her work and has since kept well.

This is not a common story. I mention it merely as an example of one other type of infection which may give rise to meningitic manifestations when abruptly activated.

Case 8

Lastly we come to a case of what would be styled "meningism" in the more accepted sense of the term. A year ago a small boy was admitted to

* *Guy's Hosp. Rep.*, 1923, lxxiii, 139.

one of my cots in Mary Ward. In the surgery his symptoms were mainly abdominal, and appendicitis had been suspected. Shortly after admission he developed neck-rigidity and Kernig's sign. He may be said to have shown "peritonism" and "meningism" in quick succession. He then developed signs of an apical pneumonia and, later, an empyema, and finally acquired scarlet fever and died in the isolation room. A lumbar puncture performed during the stage of meningism showed that the fluid was under definitely increased pressure, but there were no cellular abnormalities.

Meningism of this type is a not infrequent occurrence in children with pneumonia or otitis media. That the nervous system in childhood is a more sensitive machine is shown by the frequency of convulsions in the tender years. Although I was frequently compelled to perform a lumbar puncture in cases of typhoid fever and trench fever during the war on account of intense headache and a pseudo-Kernig's sign due to muscular pain and stiffness, I cannot recollect that I have ever seen pronounced meningism apart from meningitis or meningeal hæmorrhage in an adult.*

Now if we are to accept, as seems reasonable, that the meningism (*i.e.*, Kernig's sign and neck-rigidity) in Cases 1 to 7 was expressive of a genuine meningeal inflammation, it becomes difficult to believe that the indistinguishable meningism of pneumonia and otitis media in children can have an alternative explanation. And yet it is, I fancy, quite commonly supposed that meningism of this type is due to some vague "reflex irritability," or else the syndrome is left wholly unexplained. Is it not too readily assumed that an absence of cells and organisms or a negative inspection after death establishes the absence of meningitis? I would rather argue that meningism is a specific reaction more delicate in its proclamations than the pathologist's microscope, and that there is a genuine irritation, or non-infective inflammation, of the meninges in these pneumonic and otitic cases due, probably, to the chemical products of fever or nearby infection. We have further observations in support of this. In the case described (Case 8), although there was no cellular increase the pressure of the cerebro-spinal fluid was conspicuously raised. If the pressure of the fluid is raised, there must either be some process stimulating an increased secretion or some interference with absorption. In other serous cavities of the body, such as the knee-joint, we know that effusion may occur without the presence of bacteria or leucocytes. Furthermore, I can relate another case of meningism with pneumonia in a child, in which, with a clear fluid, we yet discovered a few polymorphonuclear cells in the centrifugalised deposit, and an adult case of presumed meningitis in a soldier in which one colony of meningococci grew from a clear fluid and the patient proceeded to get well after a single puncture. Findings such as these seem to me to establish the link between the cases of supposedly non-meningitic meningism and the cases with accepted proofs of meningitis. With the help of such observations may we not argue that meningism (that is to say, the syndrome including neck-rigidity and Kernig's sign) is always specific of meningitis, even if that meningitis, as in the case of sub-arachnoid hæmorrhage and the pneumonic and otitic forms, is an aseptic meningitis and unassociated with gross products of inflammation in the cerebro-spinal fluid?

While they are specific of meningeal irritation, the symptoms of meningism are not, however, specific of any one type or cause of irritation. This is true of all well-defined symptoms. They constantly specify a type or mode of physiological disturbance, but they do not in themselves indicate the particular cause of the disturbance. For a full diagnosis other clues must be sought in the age and the general condition of the patient, in the history, and in associated symptoms and signs.

In conclusion, there are four main groups of cases in which meningism may be observed :—

1. Acute pyogenic meningitis (meningococcic, pneumococcic, streptococcic).
2. Sub-acute meningitis complicating general tuberculosis, poliomyelitis or activated syphilis.
3. The aseptic meningitis of sub-arachnoid hæmorrhage.
4. The meningeal irritation or aseptic meningitis of pneumonia and otitis media in children.

With ordinary clinical care it should be possible to place a case in one of these four groups, and often enough to give a correct opinion. With the aid of the lumbar puncture needle an accurate diagnosis can generally be established.

* Since this lecture was given we have had a case in Clinical Ward of a man with an epidural abscess who showed meningism. His cerebro-spinal fluid was under increased pressure, but quite clear. It showed no organisms, but an increase both of polymorphonuclear cells and lymphocytes. He had, therefore, a mild "aseptic" meningitis due to a neighbouring infection. Later he succumbed to a septic meningitis.

Guy's Hospital Gazette

The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Vincent's Infection

A Clinical Lecture delivered at Guy's Hospital by A. Bulleid, Esq., M.R.C.S., L.R.C.P., L.D.S.

GENTLEMEN,—I have been tempted to bring this subject before you this morning as I have recently had several cases of this disease under my care, and also because I am certain that many of these cases are undiagnosed and so receive inadequate treatment.

The name Vincent's angina should, strictly speaking, be applied only to those tonsillar infections which are associated with Vincent's organisms, and not to those infections of the gums and oral mucous membrane which we designate ulcerative gingivitis, ulcerative stomatitis, trench mouth and necrotic gingivitis. The tonsillar infection simulates to some extent a diphtheritic infection, and it is always advisable to make direct smears as well as cultures from all such cases as diphtheria and Vincent's angina can co-exist. It is not, however, my intention in this lecture to deal with the tonsillar infections, though it should be pointed out that the gums can become infected from the tonsils and *vice versa*. One point should be stressed at the outset, and that is that Vincent's angina is a highly infectious, contagious disease, and also that the possibility of its spread from the domestic animals such as the cat or dog should not be overlooked.

From the dental standpoint Vincent's infection has received several synonyms as already stated. It is always an acute infection, and in the early stages the diagnosis should present little difficulty. It is needless to point out that adequate treatment can only be instituted with hope of a quick cure if the diagnosis is made early.

ÆTIOLOGY

Acute necrotic gingivitis is a disease of the gums commencing at the free margins. It is found both in children and adults, and in the former the tendency to spread quickly over the whole oral mucosa is very marked. It is practically always associated with stagnation in the mouth, which suggests why in adults the disease so often commences in the region of the lower wisdom teeth.

It is often found in children suffering from inanition, and especially in the later stages of infective diseases such as measles and scarlet fever.

SIGNS AND SYMPTOMS

The disease is characterised by an acute necrotic inflammation. In children in the early stages there is no pus, or practically none, and smears from the ulcerated patches show large numbers of fusiform bacilli and spirochætes and no pus cells. Another important diagnostic feature is the absence of the usual mouth flora. In a rapidly spreading case there is an almost unbroken line of necrotic ulceration extending all along the gum margins. The gums are swollen and retracted from their attachment to the teeth. The ulcers are extremely painful and bleed easily. No true membrane is found, but the slough is firmly adherent and is excruciatingly painful to remove. As a rule there is gland enlargement, pyrexia and gastric disturbances associated with a furred tongue, offensive breath and general malaise. Contact ulcerations of the cheek may occur, and if the disease progresses and is untreated (particularly in poorly nourished children) there is a grave risk of "Cancrum Oris."

There is a tendency for the ulceration to spread deeply into the alveolus in the interdental regions, and even if the disease is treated promptly and efficiently there is often a marked loss of alveolus as an end result. In adults a favourite site for the commencement of the ulceration is in the lower wisdom regions (owing to the stagnation area that is so often present around these teeth), and the ulceration spreads along the gum, the interdental papillæ being usually markedly ulcerated. There is a tendency for the ulcerations to heal in one place and break out afresh in another.

The appearance of the ulceration is similar to that described in the case of children, and there is the same tendency for the ulceration to spread deeply into the alveolus in the interdental regions with subsequent permanent loss of bone in these regions when the disease has run its course. Contact-ulcers of the cheek are fairly common, but the tongue is not often affected. The gum tissue not actually involved in the ulcerative process becomes inflamed and œdematous and bleeds easily. There is generally swelling of the cervical glands, especially in children. There is some difference of opinion as to how ill the disease makes the patient, but in my experience the patient, as a rule, is extremely poorly. The disease is very toxic, and the heart muscle is particularly prone to be affected.

The Wassermann reaction in all cases of Vincent's infection is negative in non-syphilitic patients, and, in fact, patients undergoing mercurial treatment are prone to acquire the disease.

The blood picture is of interest; Goadby states that in the absence of secondary infections the

differential leucocyte count shows polymorphonuclear leucopenia with a relative lymphocytosis. The hæmoglobin percentage is lowered, but the number of red blood corpuscles is normal, at any rate in the early stage of the disease. In smears made from the ulcers, blood cells of an inflammatory nature are conspicuous by their absence in uncomplicated cases.

BACTERIOLOGY

True Vincent's infection is associated with two organisms—the bacillus fusiformis and the treponema Vincenti. In 1896, Vincent described a fusiform bacillus frequently associated with a spirochæte (now known as the treponema Vincenti). In 1898, Veillon and Zuber, studying the bacterial flora of appendicitis and other suppurative lesions, described a number of non-sporing anaerobic bacilli to which they gave the names of bacillus ramosus, b. serpens, b. fragilis, b. furcosus and b. fusiformis. The last-named organism was apparently identical with the fusiform bacillus described by Vincent.

Topley and Wilson give the following description of the bacillus fusiformis and the treponema Vincenti. The bacilli are typically rod-shaped, but their size is subject to considerable variation. They may be short or they may grow out into long filaments, which are generally curved. Their width is also variable—not infrequently it is greater near the middle of the bacillus than at the end, giving the organism the fusiform appearance—occasionally the greatest diameter is at one end so that the organism appears clubbed. Pleomorphism is a characteristic of some species. The organisms are arranged singly in pairs end to end, or in chains; pseudo-filaments showing evidence of subdivision are common. Some species may show branching, with the result that V or Y forms are seen. It is said that motility is possessed by some species, but not by others. There is no spore formation. The organism stains with the usual aniline dyes, but staining is irregular. The reaction to Gram varies with different specimens—most are Gram negative when the usual Gram technique is employed, but if care is taken not to decolourise too long they remain Gram positive. In necrotic tissue the organisms appear as curved rods 5μ—12μ in length and 0.5μ—0.75μ in breadth. The bacillus can be cultivated under anaerobic conditions at 37° C. in serum agar and serum broth. The deep colonies have a felt-like branched appearance, the larger ones are rounded. On the surface of serum agar the colonies resemble those of streptococci. In serum broth large white flocculi form in 24 hours and sink to the bottom. Lœffler's serum and Dorset's egg medium are not liquefied. The organism is killed in 15 minutes by moist heat at 55° C. Injection intramuscularly or subcutaneously into a rabbit or guinea-pig has little effect—sometimes an abscess is formed.

The treponema Vincenti which accompanies the bacillus fusiformis in direct smears from the ulcers is a long, delicate, flexible, motile spirochæte about 5μ—10μ long and has three to eight irregular spirals set rather widely apart. It stains uniformly but poorly with the usual aniline dyes and is Gram negative. It is actively motile. It can be cultivated anaerobically on serum agar or in serum broth at 37° C. Injection subcutaneously into guinea-pigs is generally without effect. It is not clear whether the treponema Vincenti, either on its own or in symbiosis with the bacillus fusiformis, is responsible for the necrotic condition in human beings, but the treponema is sometimes found in the depth of the infected tissues. There is no evidence to support the contention that the bacillus fusiformis and the treponema Vincenti represent two phases of the same organism. It is interesting to note that if aerobic cultures are made from the ulcerated patches, in Vincent's infection an almost pure growth of streptococci is generally found (usually the viridans type).

DIAGNOSIS

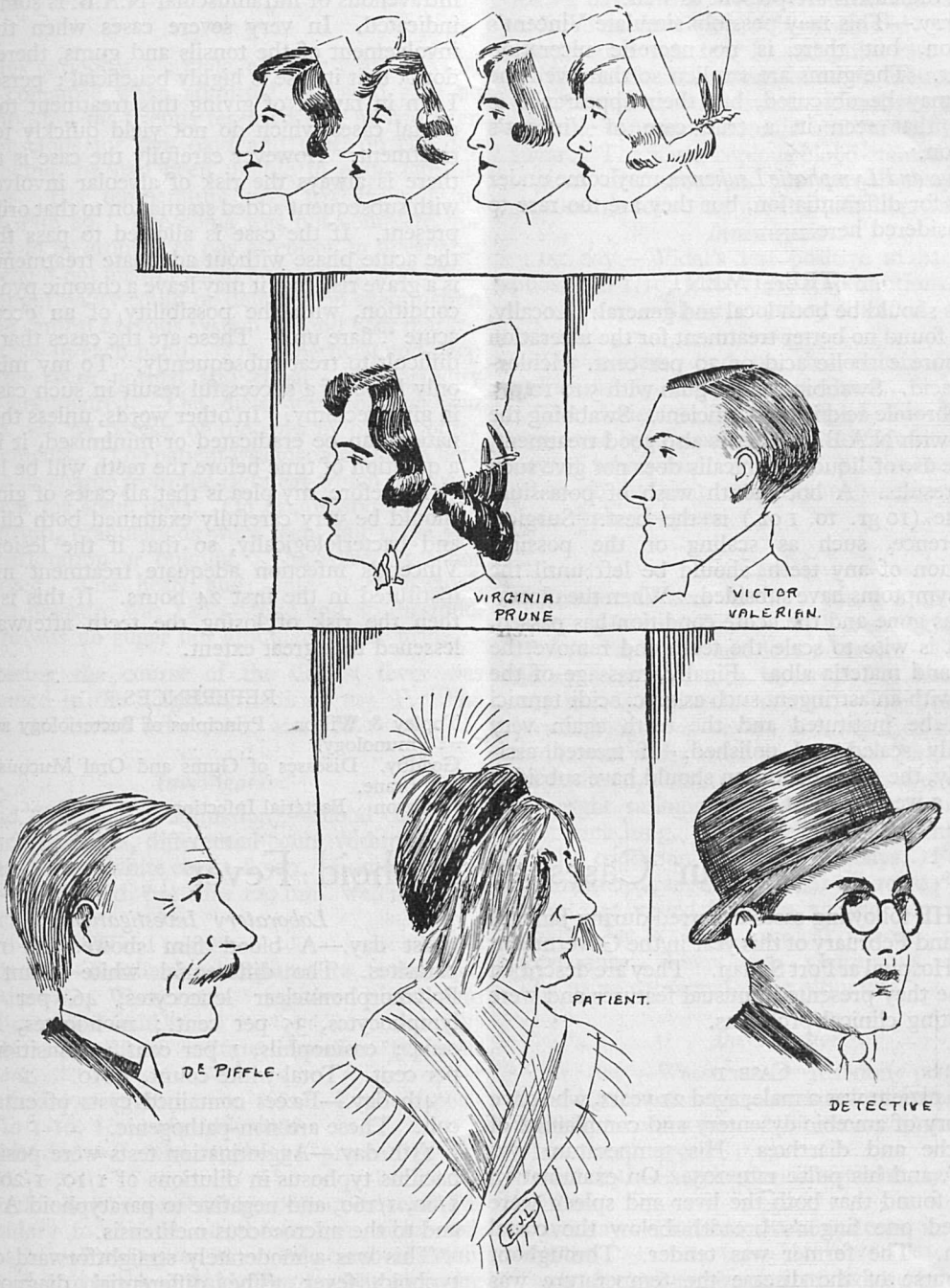
This should present few difficulties in the early stages—the typical appearance of the gums and the ulceration and the invariable presence of large numbers of fusiform bacilli and the treponema Vincenti in direct smears from the ulcers stained by carbolic methylene blue, dilute carbol fuschin or giemsa, make the diagnosis fairly easy. The absence of pus and the absence of the usual mouth flora are also characteristic features of the picture.

DIFFERENTIAL DIAGNOSIS

From Diphtheria.—Practically speaking, this question can only crop up if the infection is localised to the tonsils and then cultures put up on Lœffler's blood serum will show the presence of bacillus diphtheriæ. Film preparations direct from the lesions are sufficient proof of Vincent's angina, but not of diphtheria. As already mentioned, both diseases can co-exist.

From Suppurative Periodontitis.—There should be no difficulty about this diagnosis. True pyorrhœa is a chronic disease from the onset, and the only occasion when confusion is possible is when there is an acute "flare up" on top of a pyorrhœic condition due, as a rule, to streptococci or, possibly, bacillus fusiformis. Pus is always present in smears from true cases of pyorrhœa.

From Suppurative Gingivitis.—The diagnosis should be fairly easy, as pus is always present in


VIRGINIA PRUNE
VICTOR VALERIAN.
DE PIFFLE
PATIENT.
DETECTIVE
E.J.L.

an acute suppurative gingival condition and not in the early cases of Vincent's infection. Fusiform bacilli and at least two types of spirochætes are always found in suppurative gingivitis, and other mouth organisms are present as well.

Scurvy.—This may possibly simulate Vincent's infection, but there is no necrotic ulceration present. The gums are swollen so that even the teeth may be obscured, but their appearance is unlike that seen in a true case of Vincent's infection.

Sprue and Lymphatic Leukemia may come under review for differentiation, but they are too rare to be considered here.

TREATMENT

This should be both local and general. Locally, I have found no better treatment for the ulceration than pure carbolic acid or 30 per cent. trichloracetic acid. Swabbing of the gum with 5 to 10 per cent. chromic acid is most efficient. Swabbing the ulcers with N.A.B. powder is also good treatment, but the use of liquor arsenicalis does not give such good results. A hot mouth wash of potassium chlorate (10 gr. to 1 oz.) is the best. Surgical interference, such as scaling or the possible extraction of any teeth, should be left until the acute symptoms have subsided. When the ulceration has gone and the acute condition has passed, then it is wise to scale the teeth and remove the tartar and materia alba. Finally, massage of the gums with an astringent such as glyc. acidi tannici should be instituted and the teeth again very carefully scaled and polished. If treated assiduously, the acute condition should have subsided within a week at most.

The general treatment is also of importance, and should consist in the giving of an iron and potassium chlorate mixture and cod liver oil to children. Constipation should be treated. The use of intravenous or intramuscular N.A.B. is sometimes indicated. In very severe cases when there is involvement of the tonsils and gums, there is no doubt that its use is highly beneficial; personally, I am in favour of giving this treatment to those dental cases which do not yield quickly to local treatment. However carefully the case is treated there is always the risk of alveolar involvement, with subsequent added stagnation to that originally present. If the case is allowed to pass through the acute phase without adequate treatment there is a grave risk that it may leave a chronic pyorrhœic condition, with the possibility of an occasional acute "flare up." These are the cases that are so difficult to treat subsequently. To my mind the only hope of a successful result in such cases lies in gingivectomy. In other words, unless the stagnation can be eradicated or minimised, it is only a question of time before the teeth will be lost.

Therefore, my plea is that all cases of gingivitis should be very carefully examined both clinically and bacteriologically, so that if the lesion is a Vincent's infection adequate treatment may be instituted in the first 24 hours. If this is done, then the risk of losing the teeth afterwards is lessened to a great extent.

REFERENCES.

Topley & Wilson. Principles of Bacteriology and Immunology.
Goadby. Diseases of Gums and Oral Mucous Membrane.
Appleton Bacterial Infection.

Four Cases of Typhoid Fever

THE following cases occurred during January and February of this year in the Government Hospital at Port Sudan. They are described because they presented unusual features and were interesting clinical problems.

CASE 1

The patient was a male, aged 21 years, who gave a history of amœbic dysentery and complained of headache and diarrhœa. His temperature was 105° F. and his pulse rate 105. On examination it was found that both the liver and spleen were enlarged one finger's breadth below the costal margin. The former was tender. Throughout the course of the disease the temperature was sustained between 103° F. and 105° F. The bowels showed intermittent constipation and diarrhœa. The urine was normal.

Laboratory Investigations

1st day.—A blood film showed no malaria parasites. The differential white count was: Polymorphonuclear leucocytes, 46 per cent.; lymphocytes, 35 per cent.; monocytes, 17 per cent.; eosinophils, 1 per cent.; transitionals, 1 per cent. Total white count, 7,810.

4th day.—Fæces contained cysts of entamœba coli. These are non-pathogenic.

15th day.—Agglutination tests were positive to bacillus typhosus in dilutions of 1/10, 1/20, 1/40, 1/80, 1/160, and negative to paratyphoid A and B and to the micrococcus melitensis.

This was a moderately straightforward case of typhoid fever. The differential diagnosis of amœbic hepatitis was negatived by the low white count, the absence of a polymorphonuclear leucocytosis, and the fact that the fever did not respond

to subcutaneous injections of emetine hydrochloride. Favouring amœbic hepatitis were the history of amœbic dysentery and the enlarged, tender liver.

CASE 2

This patient was a male, aged 27 years. As he was comatose when admitted he could give no history, but his friends reported that he had been unconscious for two days and that, on the day preceding, he had been unable to enunciate his words. His temperature was 103° F. and his pulse rate 89. The coma was not complete, for he could be aroused to pay attention to questions, but could not answer them on account of aphasia. No abnormality could be detected on examination of the central nervous system beyond very marked athetosis in each hand. The superficial and deep reflexes were normal and equal and sensibility was unimpaired. The discs were normal and there was no paresis of the eyes or of the other movements. The patient was incontinent. There was a discharge from the right ear which had been present for some days. On examination of right ear drum, granulations were seen, but there was no perforation or bulging. The spleen was not enlarged. The heart and lungs were normal. Blood pressure was 120 systolic and 80 diastolic. There was no sugar nor albumen in the urine.

During the course of the illness, fever was sustained in the neighbourhood of 103° F. The pulse rate varied between 80 and 120.

Investigation

2nd day (after admission).—Blood film, no malaria parasites, differential count within normal limits. Total white count, 8,500. Lumbar puncture—clear fluid, pressure 120 mm. water, 2 cells per cm.

3rd day.—Widal negative.

4th day.—Further lumbar puncture, 10 c.c. fluid withdrawn. Wasserman, negative blood and cerebro-spinal fluid.

7th day.—Blood culture, bacillus typhosus present.

12th day.—Agglutination tests. Typhoid positive in 1/10, 1/20, 1/40 dilutions.

24th day.—Bacillus typhosus present in the urine.

In this case a cerebral abscess or encephalitis secondary to middle ear disease was suspected. The athetosis suggested an organic cerebral lesion. The while count and fluid from lumbar puncture were against cerebral infection, but the diagnosis remained in doubt until the positive blood culture was achieved.

CASE 3

This patient was a female, aged 20 years. She was admitted in a state of partial coma with delirium. This was alleged to have been present for 14 days. Six days previous to admission she suffered an abortion of a six-weeks-old fœtus. Her temperature was 103° F. and pulse rate 120.

No abnormalities were found on examination of the central nervous system. A catheter specimen of urine contained albumin and pus cells, but no sugar. There was copious blood-stained purulent vaginal discharge. A provisional diagnosis of septicæmia following uterine infection was made.

Investigations

1st day.—Widal's test positive to bacillus typhosus in 1/10, 1/20, 1/40, 1/80 dilutions.

3rd day.—Blood culture, bacillus typhosus isolated.

The patient died on the eighth day, and, unfortunately, autopsy was refused.

The difficulty in diagnosis of this cases was overcome by the positive agglutination test on the day of admission. Abortion is said to occur in 50 to 70 per cent. of pregnant women suffering from typhoid fever.

CASE 4

The fourth case was in a young man, aged 21 years. He was admitted with a six-days' history of fever, delirium and loss of voice. There was no available previous history. His temperature was 101° F. and pulse rate 76. The outstanding physical sign was severe ulceration of the throat and larynx with partial sloughing of the soft palate. In addition, there were signs of consolidation at the right pulmonary apex, with scattered rales over each lung. The spleen was not enlarged.

The condition lasted for 44 days. Fever was intermittent, ranging from 101° F. to 104° F. The pulse rate varied between 75 and 120. On the eighth day a large cervical abscess made its appearance. There was continuous diarrhœa. The urine contained some albumin.

Investigation

1st day.—Wassermann reaction positive. A blood film contained no malarial parasites and the differential count was within normal limits. Total white count, 9,500.

2nd day.—Examination of sputum, no tubercle bacillus.

3rd day.—Examination of sputum, no tubercle bacillus.

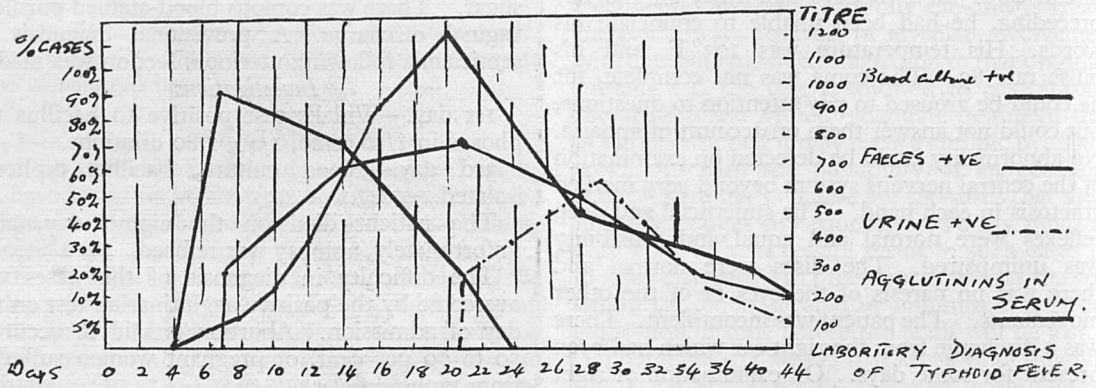
4th day.—Examination of stools, no tubercle bacillus.

8th day.—Blood culture, bacillus typhosus isolated.

10th day.—Agglutination for bacillus typhosus positive in dilutions of 1/10, 1/20, 1/40, 1/80.

The diagnosis rested between a syphilitic laryngitis with secondary pulmonary infection, the delirium being due to intoxication, and a tuberculous laryngitis secondary to pulmonary phthisis and associated with miliary tuberculosis. It was not until the positive blood culture was obtained on the eighth day that the correct diagnosis was achieved.

These examples show how atypical may be the course of a case of typhoid fever. Abdominal signs are often absent, and splenic enlargement and bradycardia do not always occur. Complications may overshadow the clinical picture and the rose-pink spots are obscured in a dark skin. Inevitably, in such cases, the diagnosis will depend on laboratory investigations, and of these a self-explanatory chart is appended.



LABORATORY DIAGNOSIS OF TYPHOID FEVER.

Junior Staff v. Nomads

By "Crossbar"

THIS match was played on Wednesday, March 23rd. Conditions were ideal. A thick mist pervaded the ground, reducing the visibility to about 25 yards. The ground, on account of rain the previous day, was soft enough to allow Mr. Shone to lower himself gently to the ground—so soft was the ground, indeed, that he seemed frequently disinclined to abandon its caresses.

The gate, though not financially efficient, was distinguished. Comfortable seating was fairly easily found for the Superintendent in the front row of the stand.

The friendly spirit of the game was exemplified by the mutual decision of both sides to dispense with touch judges, though we confess to having missed the tireless energy of Mr. Hughes and Mr. Thompson on the line.

The whole responsibility of seeing fair play therefore rested appropriately on the efficient shoulders of Mr. W. D. Doherty. Here we are bound to pause to pay our respects to the extreme fairness of Mr. Doherty's management of the game. At times we began to suspect that Mr. Doherty's whistle had seized; however, his indignant whispers in the midst of the scrummage denoted that some of the more unorthodox play had not escaped his eyes. Perhaps it took his breath away. Nevertheless he played a most strenuous game. He fielded the ball at just the critical moment for the Junior Staff, and his forward rush of about 50 yards, at the end of which he so rightly gave a scrum, was a masterly piece of refereeing.

The Staff missed the services of Mr. B. G. Scholefield, who was responsible for collecting the Junior Staff side. In order to make up for this deficiency it was necessary for the Staff to field their full strength of 16 men.

The game was hotly contested by both sides; so hotly, indeed, that the only vivid recollections of the writer are of a generalised type of angina in which the symptom of angor animi and an intense feeling of nausea played so prominent a part that anything approaching a clear impression of the details of the game are denied him.

The score of 9—9 fairly represented the untiring efforts of the referee. There was some dissatisfaction evinced by the Nomads (and some of the spectators) as to the decision given with regard to Hogbin's last attempt to convert, but obviously he kicked the ball much too high for anyone to see it.

The Junior Staff scrummage, despite their rather unorthodox packing—generally consisting

of five in the front tow, three in the second, four in the third, and the referee in the back row—displayed a wonderful mutual misunderstanding, due partly, no doubt, to the fact that some of them deafened themselves by wearing scrum caps, employed possibly as a form of disguise. Nevertheless, on occasions they exerted considerable pressure and managed at times to keep the Home pack somewhat subdued. Furthermore, their loose play in midfield, in which the barbarian yells of Mr. Eckhoff and Mr. Simpson-Smith were well to the fore, showed a degree of spirit which in some measure compensated for their obvious lack of training.

Speaking of training, it was gratifying to see that the best-trained man on the field appeared to be Dr. John Symonds, who also had the distinction of being the oldest and baldest of the players, if we are to exclude the referee.

Windsor Lewis, whose official position was at fly-half, distinguished himself as a wing-forward as well as in the back division, and managed, with clever consistency, to stand off-side throughout the game.

Scoring for the Junior Staff was due to Wheeler, Lashmore and Clarke, and for the Nomads Beckett crossed the line at the instigation of Howell and shared the nine points with Rowlands and Holden, the latter with an unopposed dribble of some 50 yards. The place kicks on each side failed on any occasion to add the necessary points.

Prominent workers for the Junior Staff were Mr. Eckhoff, who wore a scrum cap to protect his baldness, Mr. Simpson-Smith, who unavoidably arrived late, but nevertheless sucked two slices of orange at half-time, Mr. Bruce-Pearson, who was occasionally rough both in the loose and in the line-out, Mr. Shone, who frequently reposed, basking in the sun, at off-side. Mr. Popplewell, who, we are glad to see, has not yet forgotten how to hand off, Mr. Ive, who was so frequently to be seen skimming down the line, just in touch, and Mr. A. R. Clarke, who lost his temper with his pack.

On behalf of the Nomads, Mr. de Gruchy quelled the enthusiasm of many a visiting forward at full-back; Mr. Howell on occasions ran rather too fast; Mr. Hogbin's place-kicking was sufficiently good to be unsuccessful, and Mr. Stephenson showed himself to be still a useful forward.

The Junior Staff were entertained to tea by the Nomads, and later the day's activities were commemorated by a dinner at the Bridge House Restaurant, at which a fervent hope was expressed that this extremely enjoyable annual fixture should not be allowed to lapse.

Teams

Junior Staff.—W. Lewis; G. Lashmore, S. J. Wheeler, J. R. F. Popplewell, O. Ive; Windsor Lewis, A. R. Clarke; A. Simpson-Smith (Capt.), N. L. Eckhoff, J. B. Blaikley, S. Shone, R. S. Bruce-Pearson, N. S. Plummer, J. M. Lees, P. M. F. Bishop.

Nomads.—C. de Gruchy (Capt.); J. E. Rowlands, G. Elvin, J. Howell, F. H. C. Beckett; R. J. Eustace, R. A. P. Hogbin; J. Symonds, G. Gilchrist, R. Stephenson, B. Holden, A. Bowen-Davies, L. S. Campbell, W. H. Bradbeer, G. W. Hall-Smith.

Referee.—Mr. W. D. Doherty.

Sport

Rugby

Guy's v. London Irish

AT Sunbury, on Saturday, March 12th, the Hospital beat the London Irish by 4 placed goals and 2 penalty goals (26 points) to 2 placed goals and a penalty goal (13 points).

Guy's fully deserved their success, and, in view of the approaching Cup-Tie with St. Mary's, the form displayed was very satisfactory. The back division was excellent, and the brilliance of Alexander, in spite of an injury which he received early in the game, was one of the outstanding features of the match. Another prominent player was Hogbin, who once again proved a great asset to Guy's by the accuracy of his kicking.

It was rather a scrambling game, and in the early stages the Hospital forwards found it difficult to secure the ball in the set scrums, but later on they settled down and Howell was able to send out a good service from the base.

Guy's obtained an early lead when a good three-quarter movement sent in Alexander for a try, which Hogbin converted. This was followed by a penalty goal for the Irish by Barr, and a little later Johnson crossed for Guy's and Hogbin added the goal points.

The home forwards then carried out a dashing raid which ended in Coffey crossing for a try that Barr converted, and just before half-time Hogbin put Guy's five points ahead by converting a penalty with a magnificent kick from an awkward angle.

After the interval the Irish fought hard to get on level terms, but Alexander shattered their hopes

by scoring two further tries, both of which were converted by Hogbin.

However, the home side never gave up trying, and eventually Barry, one of their forwards, succeeded in crossing for a try, and Barr added the goal points.

Just before the end, Hogbin kicked another penalty goal, and thus crowned a splendid display of place-kicking.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. E. Johnson; Windsor H. Lewis, J. Howell; T. Morgan, A. C. Heberlein, J. Cunard, D. M. Leeming, R. J. Drummond, A. R. Clarke, R. A. Hogbin, C. S. Darke.

Inter-Hospital Cup Final

Guy's v. Mary's

ON Wednesday, March 16th, Guy's succeeded in regaining the Hospital Cup, when at Richmond they defeated St. Mary's by the unusual score of a dropped goal, a goal from a mark, 2 penalty goals and a try (16 points) to a dropped goal and a try (7 points).

It is many years since Guy's met St. Mary's in the Final, and the meeting of the teams on this occasion produced a hard but interesting game, which Mr. B. S. Cumberlege, the referee, controlled admirably.

Both hospitals had two of their regular players on the injured list, and it was hard luck on J. S. Batchelor, the Vice-Captain, that he was unable to lead the Guy's pack owing to a damaged shoulder.

During the first half the St. Mary's forwards led by J. J. A. Embleton, a former Cambridge captain, were splendid; they secured the ball from most of the set scrums and line-outs and were particularly dangerous in the open. The Guy's back division were well marked, and Windsor Lewis found it difficult to get away from the close attentions which were paid to him. The result was that the backs had little chance of showing anything like their form, and it was chiefly a battle for supremacy between the forwards.

St. Mary's were the first to score after 20 minutes' play, and, following one of the rushes by their forwards, the ball was dribbled over the line and, in spite of a great effort by Windsor Lewis, J. J. A. Embleton dashed up and touched down for an unconverted try.

Although Guy's attacked hard before the interval they could not penetrate a solid defence, and the breather arrived with St. Mary's deservedly leading by a try.

Early in the second half it was apparent that Guy's had taken the measure of their opponents, and, with the pack obtaining the ball more frequently, W. Lewis was able to set the threes in action.

The tremendous fire and speed of the St. Mary's forwards did not last, and in a very few minutes the Guy's forwards took the upper hand. Following good work by W. Lewis, Giesen and Johnson, and following heavy pressure in the St. Mary's 25, the ball went loose and Johnson eventually touched down for a try, which Hogbin was unable to convert from a difficult angle.

Within a minute or two Guy's were attacking again, and Drummond obtained a mark near the half-way line and surprised everybody by landing a splendid goal, the ball just passing over the cross-bar. This reverse appeared to take all the life out of St. Mary's, and, encouraged by the last success, the Guy's fifteen attacked continuously and Hogbin succeeded in kicking two fine penalty goals, and Windsor Lewis dropped a splendid goal after several attempts had been made to cross the line.

Just after this Seely, the St. Mary's wing three-quarter, had to retire with a damaged leg, and their pack was weakened by the withdrawal of Richmond. However, they fought back very hard, and near the end R. B. D. Wright succeeded in reducing the deficit by dropping a good goal.

For Guy's, W. B. Clegg played a very fine game at full-back despite a badly cut eye which he received in the first two minutes of the game. He kicked strongly with excellent judgment, and his positioning was nearly perfect.

Windsor Lewis and R. J. Eustace, the halves, had an excellent understanding, and in the second half in particular the former got through a tremendous amount of work by creating openings or saving awkward situations.

The threes were very well marked, and, as a result, were not quite so prominent as usual. However, they carried out several movements which threatened danger, and were very quick in preventing their opponents from developing any attacks.

The forwards were excellent and stuck to their task well, although they were inferior in the first half they mastered the situation so well after the interval that they were well on top at the finish. The accurate kicking of Hogbin was again a great asset to Guy's, and C. S. Darke, who only came into the team recently, more than justified his selection.

The whole team are to be congratulated on their success in bringing the Cup to Guy's for the 25th time since the competition was started in 1875.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, R. J. Eustace; C. S. Darke, J. P. O'Shea, J. Cunard, D. M. Leeming, R. J. Drummond, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Fencing

The London University Fencing Tournament

THE final pools of the Annual Tournament of the London University Fencing Club were fought off in the Guy's Hospital Gymnasium on Saturday, March 5th, in the presence of a large gathering of spectators.

The issues at stake were the possession of the Fildes Cup, awarded for the best aggregate in all weapons, and of gold, silver and bronze medals for the first, second and third places respectively in each weapon. The donor of the Cup, Mr. L. V. Fildes, presided over the foil and epée events, and Captain Cording, the sabre. The fighting, except, perhaps, in the epée, was of a standard better than that usually seen in competitions of this nature.

The outstanding feature of the afternoon was the performance of J. F. Morris, of Guy's, who headed the sabre pool and only failed to repeat this success in foil by the narrowest margin. He is to be contratulated heartily on gaining the Fildes Cup, to be thanked for keeping the Cup on " home territory " in succession to Paterson, the previous holder, and to be envied in the possession of gold and silver medals in addition to the Cup—a good afternoon's work!

The foil event, which produced some skilful fencing, was won by K. M. Kisch, of University College, a left-handed fighter, who defeated Morris by four hits to two in the barrage for first place. The first fight between these two was the best of the pool, Morris winning after having been three hits down, but he threw away his chance of heading the pool by losing to Howard-Tripp (St. Thomas's).

The epée is best dismissed in a few words, and was only remarkable for a prolonged barrage for second and third places between Tattersall (Middlesex), Lightoller (Middlesex) and Pearson (U.C.). First place was secured by Gallego, of University College. Guy's sole representative, D. H. Irish, was not at his best and only won one fight. At any rate, this event amply demonstrated to what extent luck can play a part in epée encounters.

It may safely be said that the sabreurs enjoyed themselves, and the standard of play was high. Morris, the most polished fighter, headed the pool by winning four fights, losing by the odd hit to his colleague, Irish, though otherwise he was hardly extended. His parry and riposte were excellent. Irish obtained third place after a barrage with Mackenzie (U.C.), and though, perhaps, he did not display his best form, succeeded in showing us a variety of attacks unequalled by any other member of the pool. Wright could only win one fight, and had clearly not yet recovered his best form, for though his parries were usually well formed, his ripostes were slow and failed to reach their mark, while his attacks were often uncertain owing to the slowness of his footwork.

We should like to thank Mr. Mollison for his support and to congratulate all those, especially V. D. M. Playfair, the secretary of the University Fencing Club, and the Captain of the Gymnasium, who helped to make the afternoon so successful.

Guy's v. Lensbury

A NOTABLE victory was gained from Lensbury Fencing Club on March 9th, when a three-weapon match was won by Guy's by 14 defeats to 13.

Guy's started badly to lose the foil event by six defeats to three. Morris and Paterson both fought well, but the latter especially was not quite up to his usual standard, and his persistence was insufficient to discount his indecision. Miles was outclassed in two of his fights, but did well to win the third; he is inclined to attack with too many movements, and lays himself open to stop-hits.

The Hospital recovered from this reverse and won the epée by four defeats to five. Morris won all his fights, though it cannot be denied that fortune favoured him. Paterson and Hodgkin each suffered two defeats, more by bad luck than bad judgment.

In the sabre event Guy's showed themselves to be definitely superior. Irish maintained the good form shown in the Westminster match and was undefeated. Morris, vigorous as ever, left his mark on two of his opponents, while Wright, who started badly, recovered towards the end and won his last fight. The score of the event, three defeats to six, annulled the debacle of the foil, and the whole match was won by the lead gained in epée.

Sailing Club

Easter Racing at Burnham

THE United Hospitals Sailing Club opened their season with two Inter-Hospital races for points for the Harvey and Bourne Cups.

Saturday, March 26th.—Four hospitals competed, and the race was sailed over the Cliff Course. It involved a very exhausting 2½ hours' beat to windward against the tide. *Osprey* took the lead and led somewhat easily throughout; *Grebe*, in spite of making an extra-board through mistaking the mark, kept well ahead of the *Curlew* and took second place—an excellent result, this being Andrews' first race in Burnham waters, where local knowledge is very useful.

Boat	*Hospital*	*Time*
Osprey ..	Bart.'s ..	2 : 30 : 27
Grebe ..	Guy's ..	3 : 6 : 1
Curlew ..	Middlesex ..	3 : 18 : 10
Tern ..	London ..	3 : 30 : 47

Guy's.—R. H. Andrews and P. A. Wilkinson.

Monday, March 28th.—The whole fleet of eight dinghies turned out with double-reefed mainsails. The start was marred by six out of the eight boats beating the gun. On the reach to the first bend at Creeksea, *Osprey* led again, but *Grebe*, who was fourth over, passed *Tern* and *Curlew*. At Creeksea a very short tide top made hard work baling.

After rounding the mark at Cliff the Bart.'s boat increased her lead, whilst Guy's got away from Middlesex, U.C.H., and St. Mary's, who had been close astern.

Guy's.—G. B. Palmer and I. A. Cathie.

Boat	*Hospital*	*Time*
Osprey ..	Bart.'s ..	12 : 58 : 7
Grebe ..	Guy's ..	12 : 59 : 7
Fulmar ..	U.C.H. ..	12 : 59 : 31
Redshank ..	St. Mary's ..	12 : 59 : 40
Curlew ..	Middlesex ..	12 : 59 : 51
Tern ..	London ..	1 : 1 : 53
Garnet ..	St. George's	1 : 3 : 28
Sandpiper ..	St. Thomas's	1 : 5 : 23

Hospital Information, etc.

Pass List

OXFORD UNIVERSITY.
D.M.
R. E. Havard.

Appointment

K. G. Sharvill, L.D.S., R.C.S. (Eng.), Hon. Dental Surgeon, Cray Valley Hospital, St. Paul's Cray, Kent.

Dr. I. R. Vermooten, Senior Assistant Physician, Mental Hospital, Bloemfontein.

Change of Address

Dr. J. J. Conybeare, 10, Upper Wimpole St., W.1. *Welbeck* 2054.

Dr. M. T. Aung, Medical Officer, Papun, Burma.

Dr. A. C. Taylor, Denmark House, Windsor Street, Chertsey. *Chertsey* 6.

Dr. I. R. Vermooten, Mental Hospital, Bloemfontein.

Papers by Guy's Men

H. Barber and F. A. Knott. Case of acute myeloblastic leukæmia. *G.H. Rep.*, 1932, lxxxii, 75.

W. H. Barber. Paget's disease of the nipple associated with diffuse carcinomatosis of chest wall. *Proc. R.S.M.*, 1932, xxv, 597.

P. J. Briggs and A. F. Hurst. Diverticulum of duodeno-jejunal flexure simulating radiologically a gastric ulcer. *G.H. Rep.*, 1932, lxxxii, 106.

A. H. G. Burton. Lumbar puncture in cerebro-spinal fever. *Lancet*, 1932, i, 668.

L. W. Cann. Note on investigation of efficiency of gauze obstetric masks. *G.H. Rep.*, 1932, lxxxii, 114.

L. Forman. ? Pityriasis rubra pilaris: Case for diagnosis. *Proc. R.S.M.*, 1932, xxv, 673.

S. J. Hartfall. Achlorhydria—review of 336 cases. *G.H. Rep.*, 1932, lxxxii, 13.

—— Hodgkin's disease of lung. *Ibid.*, 55.

A. F. Hurst, A. C. Hampson and A. G. Yates. Hereditary telangiectasia with hæmorrhagic tendency. *G.H. Rep.*, 1932, lxxxii, 81.

Sir E. G. Little. (1) Parapsoriasis; (2) Poikiloderma of Civatte; (3) Cicatricial alopecia. *Proc. R.S.M.*, 1932, xxv, 669.

R. R. Macintosh. Ideal general anæsthetic for dental surgery. *Brit. Dent. J.*, 1932, liii (1), 180.

O. G. Morgan. Metastatic carcinoma of choroid. *Proc. R.S.M.*, 1932, xxv, 687.

A. W. Ormond. Association of ophthalmic lesions with certain general diseases. *G.H. Rep.*, 1932, lxxxii, 119.

W. G. Sears. Blood in Hodgkin's disease with special reference to eosinophilia. *G H. Rep.*, 1932, lxxxii, 40.

E. G. Slesinger. Report on treatment by radium at Guy's Hospital during 1930. *G.H. Rep.*, 1932, lxxxii, 3.

J. Smith and M. Maizels. Plasma phosphatase in rickets and scurvy. *Proc. R.S.M.*, 1932, xxv, 597.

A. R. Thompson. Points in connection with successful issue of simple prostatectomy. *B.M.J.*, 1932, i, 560.

P. Turner. Three cases of strangulated hernia. *G.H. Rep.*, 1932, lxxxii, 98.

Death

METCALFE.—On March 15th, 1932, at Clare, Suffolk, George Herbert Metcalfe, M.R.C.S., L.R.C.P., aged 68.

EDS. { J. S. B. / G. A. M.L.

GUY'S HOSPITAL GAZETTE

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PASSIM

IT affords us much pleasure to be able to announce, elsewhere in this issue, the revival of one of the oldest of the Hospital Societies. We refer, of course, to the Debating Society, which, after a quiescent period of 13 years, is about to spring into life again. It is particularly fitting that this renewal of activity should take place at the present time, in that this year marks the 40th anniversary of the inauguration of the Society.

The Debating Society does, we feel, fill a very real gap in the education, in the widest sense of the word, which the Hospital affords to its members. In the first place, at the majority of meetings the subjects under discussion are of a non-professional character, and thus have the advantage of broadening an outlook which in institutional life is apt to become somewhat circumscribed. Secondly, and this we regard as of immense value, it gives members the opportunity of making their first attempts at public speaking in an atmosphere which is friendly and at the same time not too critical. Sooner or later each member of the medical profession will be called upon to express his views in public, be it in a Court of Law or at a Parish Council meeting. Happy is he who, with a regular attendance of the Debating Society's meetings behind him, can respond to such demands on his elocutional powers without that trepidation which is born of total inexperience.

We should like to take the opportunity of wishing the Society every success in its new lease of life. We look forward with confidence to meetings as well attended and discussions as stimulating as they were in the past.

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FOR years it has been the custom to grumble about the accommodation in the Students' Club, and particularly about the washing and lavatory arrangements in the College. From time to time the authorities have endeavoured to make small improvements, the scope of which, however, is always hampered by lack of funds. Recently, the wash-basins in the College have been provided with nail-brushes, articles for which there has always been a demand. Assuming that they were being provided for a decently honest community, these were not at first chained or fixed to the basins in any way. However, when it was found that the brushes remained for about 48 hours, after which they disappeared and were never seen again, the authorities were forced to provide a new set, complete with chains, with which the brushes were fixed to the basins. This was about a fortnight ago, and we regret to have to state that they have all disappeared. We feel that this is a reflection against the honesty of those who use the Students' Club, and it is hardly necessary to observe that the Committee will not be inclined to make any further improvements until some people realise that petty thieving is even more despicable than the real thing.

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ON Saturday, April 30th, the Guy's Hospital Ladies' Association are to hold their annual Jumble Sale in the Colonnade and Front Quadrangle. The proceeds are to go towards the endowment of the beds and cots in "Victoria," the Maternity Ward, and we feel that this is an occasion which deserves the support of all. If there is anything you want to get rid of, address it to the "Jumble Sale." Clothing, toys, household goods, books, etc., are items for which there is a large demand.

We hear that there is to be a "bun" stall, for which large supplies will be necessary. It has also been suggested that some of the old and battered cars which are frequently to be seen

standing outside the College could be rapidly disposed of with much profit to the Association and immense relief to the owners. However, whatever it is, by all means send it along, for there are few things that will not sell in the Borough.

THE Guy's Hospital Employees' Association held a most enjoyable dance at the Bridge House on Tuesday, April 12th. Amongst the many people present we were pleased to see the Superintendent and Mrs. Eason, who undertook the arduous duties of hostess. We feel that the organisers are to be complimented on the success which attended their efforts, and we look forward to a similar function next year.

LAST week the Nurses presented their Annual Concert to very appreciative audiences in the Physiological Theatre. This year's performance came up to that high standard of excellence that we have learned to expect in these productions. Great credit and gratitude is due to all those who gave so much of their time and their talent to provide us with such pleasurable entertainment.

Notice

North-Western University Dental School, Chicago

POST-GRADUATE SCHOLARSHIP, OCTOBER, 1932.

Any qualified student who desires to make application for nomination for the above Scholarship should communicate at once with the Dean, Guy's Hospital Dental School, London Bridge, S.E.1.

T. B. JOHNSTON,
Dean.

Hæmorrhage in Jaundiced Patients

A Paper read before the Guy's Hospital Physical Society on 10th December, 1931, by J. C. Colbeck, Esq.

MR. CHAIRMAN and GENTLEMEN,—Lord Moynihan in a recent address to medical students suggested that surgical technique had now reached the ultimate height of perfection. This may or may not be so, but there can be no doubt that surgery as judged by the post-operative deaths and other complications has far to go.

The association of a hæmorrhagic tendency with jaundice is well known and has been the subject of much investigation, yet it will be readily admitted by most general surgeons of experience that the usual antihæmorrhagic therapy appears to fail most deplorably in some cases. Most of us have heard the anxiety with which a surgeon may discuss at the foot of the bed the possibility of excessive bleeding in a deeply jaundiced patient. This is of interest for two reasons. Firstly, because of the impression which one gains that the surgeon has seldom any real faith in the antihæmorrhagic therapy, and secondly, that the yellow pigmentation of the skin has obtruded itself on his mind even as it has done on the minds of the investigators. Yet the retention of bile pigments and of bile salts is but one of the factors involved in obstruction of the ducts, and, as I hope to show, changes of a much more important nature also occur.

STATISTICS

Indeed, the most marked tendency to hæmorrhage is observed in those with toxic liver necrosis and not with obstruction. It is of interest to observe this in the three post-operative deaths from hæmorrhage which I have been able to find in the Hospital Post-Mortem Records for the last two years. Two were in persons jaundiced, one was in a girl following tonsillectomy. Petrén, who analysed the causes of death following operations on the bile ducts and gall bladder in the larger Scandinavian clinics during the years 1905-1924, found that hæmorrhage accounted for 10-15 per cent. of these, and of all such operations there was a death rate due to hæmorrhage of 1-2 per cent.

Walters in 1921 found that of 29 deaths at the Mayo Clinic following gall-bladder operations 15 were due to hæmorrhage. Neuhof and Aufses in 1930 analysed the causes of death later than 48 hours after operation. Their figures are of considerable interest as the numbers dealt with are in the region of 800, and thus of true statistical value.

It will be of value, by the aid of these figures, to compare the death rate from hæmorrhage with the death rate from some other serious post-operative complication. Thus, out of 292 deaths following gastro-intestinal operations 47 were due

to pneumonia, *i.e.*, 0.16 per cent., and three, or 0.01 per cent., due to hæmorrhage. In a series of 76 deaths following genito-urinary operations 11, or 0.14 per cent., were due to pneumonia and none to hæmorrhage.

In 91 cases of gall-bladder operations eight, or 0.9 per cent., were due to pneumonia and six, or 0.7 per cent., to hæmorrhage.

Thus, uncomplicated pneumonia is 16 times as common a cause of death as hæmorrhage after gastro-intestinal operations, while hæmorrhage and uncomplicated pneumonia rank almost equal in importance after gall-bladder operations. It should be noted that these figures take no account of the deaths occurring within 48 hours of operation, and most of which deaths would be ascribable to reactionary hæmorrhage or to shock. Further, it should be observed that the gall-bladder cases were not necessarily jaundiced. In considering the significance of these figures, one must remember that hæmorrhage is not necessarily fatal, and that numerous cases doubtless occurred where death did not result, but in which there was oozing around the operation area. The occurrence of a hæmatoma is certainly a thing to be avoided, and it is possible that many of those disappointing cases, because they develop a fistula, do so because the operation area becomes a seat of a breaking down clot.

Why, then, is it that hæmorrhage is so frequent in these cases? It may be argued that the site of operation is the most important factor. There is certainly some evidence in favour of this view, for the raw area which may be left by the removal of the gall bladder leaves injured liver tissue with sinuses which do not contract in the same way as many other vessels do.

It were well at this juncture to consider the means by which hæmorrhage is arrested by the normal defence mechanisms of the body. The first reaction is a contraction of the musculature of the vessels, and a retraction of the elastic tissue whereby their lumen is narrowed. The vessels vary considerably in their power of contraction and retraction. It will be noticed at once that the liver sinuses, which have no power of contraction, would not be able to act in this manner, although both the veins and lobular arteries are capable of complete closure in certain animals.

Certainly lacerations of the liver tend to ooze for some considerable time, and injuries involving rupture of the liver may result in fatal hæmoperitoneum. This cannot, however, be the deciding factor in the causation of the high hæmorrhage rates, for even in cholecystectomy the liver substance is not frequently lacerated, as the skilful surgeon usually manages to make the plane of cleavage between the liver and the gall bladder pass through the connective tissue separating those organs, while damage even of such an area of liver as is occasionally damaged at operation does not lead to fatal hæmorrhage in the average patient. As was shown in the war, many lacerations of the liver healed spontaneously, while some of the fatal cases recorded associated with jaundice either did not follow cholecystectomy or bleeding could be shown to have occurred from some other site. Recently, small wedges of liver tissue were removed for microscopical examination from large series of patients, and in no case was there clinical or post-mortem evidence of subsequent hæmorrhage. Care was taken, however, to prevent hæmorrhage by mattress-suturing and by avoiding patients with marked jaundice.

Even in favourable circumstances this constriction of the vessels is not sufficient in itself to stop the flow of blood completely or permanently, and its importance lies not only in checking the immediate loss of blood, but also in enabling the establishment of efficient clots which plug the mouths of the severed vessels—less time is required to build a dam across a narrow stream than across an estuary.

The first process observed is the aggregation of platelets at the mouths of the injured vessels, the so-called "white thrombus." These not only tend to block the lumen of the vessels, but by the disintegration of platelets set free substances which stimulate the formation of fibrin threads, which ultimately bridge the lumen in increasing numbers and entangle the formed elements of the blood to form a clot which then spreads a short way up the lumen.

There are many theories as to the intimate nature of the process of blood coagulation, that is to say, the method of formation of an insoluble protein gel fibrin from the soluble fibrinogen, and it would be helpful to describe some of the more important current views.

It is generally admitted :—

1. That calcium ions are essential to the inception of clotting.

2. That thrombin in active form does not exist in the blood.

3. That the breakdown products of platelets and tissue cells in general play an active part in the process of clotting.

On these points there is almost general agreement, but on almost every other question there are fundamental differences of opinion.

Morawitz (1904) believes that fibrinogen and a substance called thrombogen normally circulate in the blood. When the blood is shed, the platelets and leucocytes by their disintegration liberate an

enzyme—thrombokinase, which, with the help of calcium ions, converts thrombogen to thrombin. Thrombin then, also acting as an enzyme, converts fibrinogen to fibrin.

Bordet (1920) believes that the fluidity of the blood is maintained by the stabilisation of the precursor of thrombin, either by a specific antibody or by association with protective colloids. When blood comes into contact with certain surfaces this precursor of thrombin becomes activated, and then unites with the phosphatides of the blood and of tissue juices to produce thrombin. There is no enzyme action, and combinations occur in varying proportions after the manner of toxin and anti-toxin.

Howell's Theory is of particular interest in this paper and may be summarised as follows :—

1. The essential factor in the maintenance of fluidity of circulating blood is a substance which he has named " heparin." This substance, by its action on pro-thrombin, prevents its conversion to thrombin by calcium.

2. This heparin, or anti-pro-thrombin, is neutralised by the breakdown products of platelets and other tissue cells, thereby leaving the pro-thrombin free to combine with the calcium ions to form thrombin. It is incapable of preventing union of thrombin and fibrinogen.

3. The thrombin formed reacts with the soluble fibrinogen, to form insoluble fibrin, which is deposited as needles.

4. By reaction of the fibrin needles, with the external phase gelatinisation takes place.

Howell has demonstrated the presence of such a substance in the blood of normal dogs, and in much larger quantities in the blood of dogs rendered incoagulable by peptone injections. This substance heparin can be obtained in high concentration by the perfusion of the liver of the dog with normal saline or blood. It is apparently a carbohydrate body, and a compound of glycuronic acid. Purified heparin is water soluble, non-toxic, and gives no protein reactions. It is extremely active, and, when purified, one milligram will prevent the coagulation of 100 c.c. of human blood. It is capable of preserving platelets intact in vitro for 24 hours. Heparin does exert some stabilising influence on blood which is beginning to clot.

Howell has also shown that the essential constituent of the thromboplastic substances formed by platelets, etc., is cephaline, a phosphatide. The existence of heparin is, however, much doubted by many physiologists. They complain that heparin is only prepared from the liver by drastic methods, and also note that if heparin be injected into an animal the blood is first rendered incoagulable, but later becomes more easily clotted.

The character of the clot formed is of considerable importance, and since it is not easily observed and cannot readily be measured, it has not received the attention which it deserves. It is not sufficient that the blood should clot rapidly; the final structure must be firm and adherent, if hæmostasis is to be maintained. Whipple has shown that, if the blood be deficient in fibrinogen, the blood may clot in normal time, and yet the clot formed is not of sufficiently firm a character as to be of any real value in the permanent arrest of hæmorrhage.

That jaundice is but a symptom is obvious to all, yet, as we have said, perusal of the literature will certainly show one how large a part this symptom plays in the theories of the causation of various upsets in obstructive jaundice, to the lamentable exclusion of the full consideration of the other important functions of the liver. It is not merely in order to excrete bile pigments that the body maintains an organ weighing in the adult about 1,500 grams, 1/40 of the body-weight, and in the fœtus at term 1/18 of the body-weight.

Boyd has said that " the liver is second only to the brain in the multiplicity of its functions." This is not so. The brain merely receives stimuli, retains certain impressions, and then, by a series of more or less complicated reflexes, sends out impulses.

The liver, however, receives all kinds of chemical substances, proteins, carbohydrates and fats, elaborates them, stores some of them, and then distributes to the whole body as they are needed.

Intimately associated with these functions is the power of removing from the blood injurious substances; poisons either ingested as such or resulting from chemical processes within the body. We need only mention certain other functions in passing, as, for instance, its position in the portal circulation as a filter, removing bacteria and amœbæ from the blood, and the much discussed question of its part in immunity reactions. The part played by the liver in the formation of fibrinogen is of extreme importance in this paper. Mann has said that, although it is not definitely proved that the liver alone is responsible for the formation of fibrinogen, the evidence goes to show the immense importance of the liver in this connection. The probable secretion of an anti-thrombin, heparin, has already been discussed and need only be mentioned.

It must be remembered that the hepatic bile does not consist merely of a solution of bile salts and pigments, but of a large number of substances including mucin, cholesterol, lecithin, fat and salts. Mathews said in 1925, " Its composition is in many important particulars still obscure, and

many valuable discoveries remain to be made concerning its composition, function and secretion," while the composition of the bile in the common duct is still further complicated by the absorptive and secretory processes which occur in the gall bladder. The power of the liver to excrete some foreign substances in high concentration is utilised by radiologists in the visualisation of the gall bladder and ducts by means of intravenous injections and oral administrations of various dyes.

The liver performs the last stages in the formation of bile pigments and excretes them.

Bile salts are also excreted by the liver, though the site of their formation is not known. It is alleged by some that they are formed in the Kupfer cells; by others they are believed to be formed outside the liver.

PATHOLOGY OF LIVER DAMAGE

A hæmorrhagic tendency is present in various types of liver damage. It is most frequently discussed in relation to obstructive jaundice, because it is this type of case which falls most often into the surgeon's hands, and so ends fatally by bleeding. This tendency is most marked, however, in acute yellow atrophy and in the severe necroses such as those caused by chloroform and phosphorus poisoning; indeed, in these conditions the shed blood may be quite incoagulable.

Severe hæmorrhage may follow operations on patients with jaundice, even of mild degree due to sepsis. A case recently occurred in Guy's Hospital in which fatal hæmorrhage followed on hysterectomy and bilateral salpingectomy in a girl who was only slightly jaundiced. The jaundice was of three weeks' duration, and was decreasing at the time of the operation. Post-mortem there was no obstruction to the ducts, and the jaundice was apparently due to a mild hepatitis. The blood coagulation time was normal before operation.

There appears to be no such tendency in the hæmolytic jaundices, such as familial acholuric jaundice. Wagensteen states that the tendency to spontaneous hæmorrhage is practically unknown in "catarrhal jaundice," while alteration in the manner in which the shed blood clots is also unusual. This, if it is substantiated, is interesting in view of the recent views on the pathology of this condition.

In obstructive jaundice there is considerable damage to the liver, even as there is to the kidney with obstruction to a ureter, but whereas in obstruction to a ureter the result is almost entirely due to the retention of the substances normally excreted by the kidney, in obstruction to the bile ducts the results are much more complex. Damage to liver cells may interfere not merely with its excretory powers, but also with various of its other multitudinous functions, both anabolic and katabolic.

Marked variation both in the type and the degree of injury occur. Ogata (1913) has stressed the importance of early necrosis of liver cells when the ducts are obstructed. Certain changes may be present in the liver in cholecystitis even before obstruction; indeed, cholecystitis may be regarded as a part only of a general inflammation of the bile ducts. Flint recently examined sections from the livers of patients with cholecystitis and found that most sections showed a round-celled infiltration around the portal tracts, while many showed definite fibrosis around the bile ducts. Varying degrees of damage to the liver parenchyma cells were seen, such as fatty degeneration and other changes apparently necrotic in nature. The presence of "necrotic changes" in these sections is of considerable interest, as Flint did not remove sections from patients with jaundice or present obstruction "for fear of hæmorrhage." It is in such patients that more marked liver damage might be expected.

The liver changes seen in cases with malignant obstruction to the ducts without previous gall bladder disease differ markedly from the cases with obstruction due to stone. Since there is usually no antecedent pericholangitis and resulting fibrosis, enormous dilatation of the ducts throughout the liver is possible, and marked liver atrophy occurs. To this condition Judd and Counsellor have given the name hydrohepatosis. It is further observed that the cases of jaundice due to malignant obstruction of the ducts are also more frequently followed by severe hæmorrhage.

Other organs besides the liver are certainly affected in biliary obstruction, and one must consider the possibility of extra hepatic damage as a cause of the hæmorrhagic diathesis. Parturier described "a liver-kidney syndrome" after finding that 15 per cent. of cases with damage to the liver showed albumen and granular casts in the urine. McKay says that uræmia ranks next in importance after hæmorrhage as a cause of death following operations for gall-bladder disease.

THEORIES OF CAUSATION

The presence in the animal of excessive quantities of the various constituents of bile has been ascribed as the cause of the hæmorrhagic tendency in obstructive jaundice by numerous writers.

Many experiments involving the addition of whole bile to the blood in vitro have been performed. Morawitz and Bierich found that when one part of ox-bile was added to 10-15 parts of dog's blood, the blood, or perhaps it were better

termed "bile blood" mixture, was incapable of coagulation. Such a concentration (10 per cent.) of bile, however, never occurs in the jaundiced subject, and no significant anti-coagulant effects were obtained with lower concentrations. Wildeglans anastomosed the bile duct to the inferior vena cava in a large series of dogs, and though some of his animals lived for a week or more, no increase in coagulation time was observed.

Doyon and others injected large quantities of bile into the systemic blood vessels, and failed to produce any hæmorrhagic tendency.

It must be remembered that obstruction to the bile ducts does not result merely in the retention in the animal of the same fluid as is normally excreted, after the simple manner in which beer is retained in a barrel when the tap is closed.

Certain constituents of the bile do, however, circulate in the blood in excessive quantities in obstructive jaundice, although they do not do so in the same relative proportions as they are excreted in the bile. Horrall states that whole bile is less *toxic* than certain of its constituents in equal concentration in normal saline. One must, therefore, attempt to evaluate the importance of certain of the bile constituents, as to their ability to produce a hæmorrhagic tendency independently, since they are not all retained equally.

From among all the substances present in bile it is natural that the salts and pigments should have attracted most attention, and both have been incriminated as the cause of the hæmorrhagic tendency.

BILE SALTS

Bile salts circulate in the blood early in obstructive jaundice, and since bile salts are relatively toxic substances and are capable of the inhibition of the coagulation of the blood in vitro, they were investigated very thoroughly. Morawitz and Bierich found that concentration of bile salts of $\frac{1}{2}$ to 1 per cent. were necessary to produce definite inhibition of clotting in vitro, while very little effect was produced by concentrations of $\frac{1}{4}$ per cent., all of which concentrations are of purely laboratory occurrence and never occur in obstruction. Gustav Petrén found that the addition of 0.61 per cent. of taurocholic or glycolic acid bile salts were required to delay the extravascular clotting of dogs' blood or human venous blood in vitro. In 18 patients with obstructive jaundice the same concentration of bile salts was necessary to produce the delay in clotting, though in eight others delay in coagulation was obtained with lower concentrations.

There are also other important objections to the belief that bile salts are the cause of the hæmorrhagic tendency. Wagensteen, Hoppe-Seyler and Malkoff have shown that in obstructive jaundice bile salts are excreted in diminished quantity as the jaundice progresses, and cannot be found after several weeks. Brakefield and Schmidt found the same decrease in bile salt excretion in dogs with experimental obstruction to the bile ducts. That this is not due to a raised renal threshold has been shown by Snell, Greene and Towntree, who

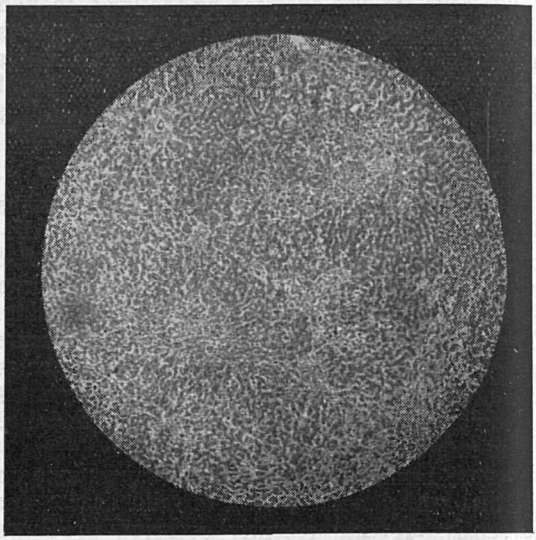


Photo-micrograph showing wide-spread necrosis of the liver in a case of acute obstructive jaundice, due to Carcinoma of the head of the pancreas.

performed alleged quantitative tests for bile salts on the blood of dogs with obstruction to the bile ducts, and claimed to show a marked increase in bile salts concentration on the second and third days, reaching a maximal value about the second week, and thereafter gradually decreasing to approach a normal value. Rowntree, Greene and Aldrich have performed similar tests on patients with obstructive jaundice with similar results.

Decreased bile acid formation also occurs following prolonged loss of bile, as by biliary fistula.

For the various reasons quoted above, it appears unlikely that the explanation of the hæmorrhagic tendency in obstructive jaundice lies in the bile salts intoxication. The highest concentration of bile salts occurs early in the disease and decreases, whereas when in patients with obstructive lesions the hæmorrhagic tendency usually occurs late in the disease.

BILE PIGMENTS

Bilirubin is now regarded as being non-toxic. Horrall and Carlson injected large quantities into mice, pups, rats and dogs and observed no ill-effects. Their work has been confirmed by Still.

With regard to the toxicity of the other various bile pigments such as biliverdin, biliprasine, bilifuscine and bilihumin, though they are generally agreed to be relatively non-toxic, it must also be observed that there are no definite methods for their isolation in chemically pure form. Urobilin is non-toxic.

The fact that high concentrations of "hæmolytic bilirubin" may occur in the blood in hæmolytic jaundice, in which there is no hæmorrhagic tendency, is interesting, but since it differs chemically from the type of bilirubin which is in considerable excess to it in obstructive jaundice, as shown by the Van den Bergh reaction, it cannot be claimed on these grounds that bilirubin is not the hæmorrhage-producing factor.

If the bile pigments be the cause of the hæmorrhagic tendency, then some parallelism should be demonstrable between the concentration of the pigments and the tendency to bleed. The total concentration of bilirubin in the blood is readily estimated, yet the observations fail to show any such relation. Indeed, cases are recorded where a marked hæmorrhagic tendency has been present at operation in cases with liver damage, where there has only been a subicterus and no other apparent cause for the tendency.

In acute atrophy of the liver a marked tendency to bleed is present before the jaundice has deepened to anything approaching that often seen in obstructive or catarrhal jaundice without hæmorrhagic tendency. In acute yellow atrophy the Van den Bergh reaction is biphasic, and is interpreted as being due to the presence of both types of bilirubin, hæmolytic and obstructive, so that if it be suggested that the bilirubin in hæmolytic jaundice does not tend towards the conditions producing a hæmorrhagic diathesis, then a much higher total bilirubin would be expected in the atrophy before any hæmorrhagic tendency appeared, while in catarrhal jaundice in which a biphasic reaction is present a hæmorrhagic tendency is very rare.

It seems that there is little evidence to support the hypothesis that the bile pigments *per se* can cause any tendency to bleed.

CALCIUM

Since it was first shown by in vitro experiments that the removal of calcium renders blood incoagulable, the blood calcium has been investigated in many hæmorrhagic states, and it is around this aspect of the problem of the hæmorrhagic tendency in jaundice that a vast amount of apparently contradictory evidence has accumulated.

Some early workers found a decrease in the total blood calcium of dogs and patients with obstructive jaundice, yet it was apparent that the figures were not sufficiently low as to allow that a deficiency in total blood calcium could account for the lengthened clotting time of the blood in jaundice, for it is known that much lower figures can occur in parathyroid tetany without producing any tendency to bleeding and definite prolongation of clotting time. It was therefore suggested that the calcium combined with the bile pigments, thereby rendering the calcium unionised and non-diffusible, and therefore useless in the process of coagulation.

It may be said at once that there is much doubt as to the accuracy of these findings and to their application to the present problem. Firstly, the estimation of blood calcium is a very difficult procedure. Gunther and Greenberg state that most such estimations performed before the introduction of Kramer and Howland's method in 1920 are of little value. Previous to this date most methods consisted essentially in the precipitation of the calcium by oxalate solutions and the weighing of the deposit formed. Calcium oxalate, however, is not the only substance precipitated, and some of the protein bound to calcium is precipitated. Since there is evidence that there may be marked blood protein upset associated with liver damage, this is a particularly serious objection in such experiments.

Secondly, many of the experiments are known to have been performed on young animals, in which it is well known that the calcium balance is much more easily upset than in fully-grown animals, while in many papers the ages of the animals are not stated.

Yet even if the earlier estimations be disregarded on the grounds of relative unreliability of the chemical estimations, it is still difficult to interpret the findings of the different recent workers.

Emerson performed a large series of experiments on dogs, the ages of which he does not state, and found a marked decrease in the diffusible calcium in jaundiced dogs, his average figure for normal dogs being 5.2 mgms. per 100 c.c. and for jaundiced dogs 1.2 mgms. per 100 c.c. These figures for diffusible calcium in jaundiced animals appears to be significantly low. Examination of Emerson's figures shows the diffusible calcium in normal dogs to be about 40 per cent. of the total calcium, while the diffusible calcium of jaundiced dogs constituted 13 per cent. of the total. This is particularly interesting in view of the fact that the

blood calcium of an animal with parathyroid tetany may fall as low as half that of the jaundiced dogs, and yet be unassociated with a tendency to hæmorrhage. Yet it will be observed that if the relation between the diffusible and non-diffusible calcium be near to that obtaining in the normal dog, the diffusible calcium of the dog in tetany will still be considerably in excess of that of a dog with long-continued jaundice, associated with a much higher total calcium. Such an animal, for instance, with a total serum calcium of 7 mgms. per 100 c.c. would have 2.8 mgms. of diffusible calcium, whereas a jaundiced dog with a total serum calcium of 9.3 mgms. would only have 1.2 mgms. of diffusible calcium.

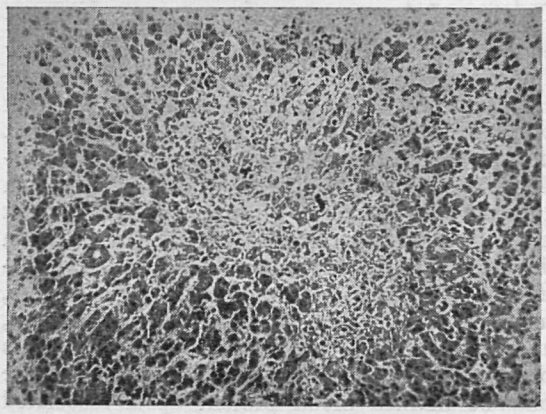


Photo-micrograph showing wide-spread necrosis of the liver in a case of acute obstructive jaundice, due to Carcinoma of the head of the pancreas.

It has been shown (Cameron and Moorhouse and Gunther and Greenberg) that the diffusible calcium is much less affected than the non-diffusible calcium in parathyroid tetany, and that the lowest values are about 3.3 mgms. per 100 c.c.

It must be noted, however, that the findings of low diffusible calcium in jaundice are opposed by those of Gunther and Greenberg (1930), who find that, while the total calcium may be slightly lower than normal, the absolute value of diffusible calcium falls within normal values in jaundiced patients and, therefore, that the percentage of the total calcium which is diffusible is higher in jaundiced than non-jaundiced subjects. Gunther and Greenberg believe "that factors other than the amount of available calcium, as measured by diffusible calcium, must be sought to explain the abnormal bleeding phenomena seen in jaundiced patients."

Minot states that in experimental carbon tetrachloride and chloroform poisoning conditions which are associated with marked hæmorrhagic tendency, the total blood calcium falls within normal values, while there is a tendency to an increased calcium ion concentration.

Ravdin, Riegel and Morrison (1930) estimated the blood calcium of 25 jaundiced patients and many jaundiced dogs and could demonstrate no alteration in calcium level beyond the normal variation. Similar results were obtained by Snell, Greene and Rowntree, and by Liston with cats.

Experiments purporting to demonstrate that the lengthened clotting time is due to deficiency of calcium by injection of calcium are definitely misleading, for there are an almost unlimited number of possibilities in such experiments, and there is evidence to show that the calcium has good effects in liver disease, independent of any immediate action on the blood.

The general weight of recent experimental evidence appears to oppose the view that a functional deficiency of calcium in the blood is the cause of the hæmorrhagic tendency. The applicability of many experiments on animals must be considered carefully, for it is not easy to produce a hæmorrhagic tendency in animals by means of duct ligature. Zimmerman failed to produce a tendency to bleed by this method, while other workers who have demonstrated low calcium levels in experimental jaundice in animals have failed to demonstrate any coincident hæmorrhagic tendency.

The generalised osteo-porosis which often appears in chronic obstructive jaundice, in both man and animals, is evidence that there is a derangement of the calcium balance in the body. It is no evidence that there is a low blood calcium; on the contrary, in parathyroid tumours, marked decalcification of the bones is associated with a high blood calcium. Emerson has shown that if the bile is allowed to escape by a biliary fistula, a high blood calcium is then associated with a marked osteo-porosis—while there are clinical cases in which a marked tendency to bleed has been present in patients with an external biliary fistula, with no apparent cause for this tendency.

As the result of the consideration of the work of numerous workers on this aspect of the problem, a small part of which has been discussed, we must conclude that there is not sufficient evidence to justify the belief that the hæmorrhagic tendency sometimes associated with jaundice is attributable to a deficiency of calcium diffusible, or otherwise in the circulating blood. The possible justification for the administration of calcium to jaundice patients will be discussed again when treatment is considered.

(*To be continued.*)

The North-Western University Dental School of Chicago

A Paper read before the Dental Society, Guy's Hospital, February, 1932, by
W. E. Herbert, Esq., M.R.C.S., L.R.C.P., L.D.S.

MR. CHAIRMAN and GENTLEMEN,—I was fortunate enough three years ago to have the opportunity of spending seven months in the States, most of which time I spent at the North-Western University Dental School of Chicago. I propose, therefore, to try to give you a description of this School and to outline the various methods adopted therein, and then, if time permits, to say a few words about the dental work of the Mayo Clinic and the organisation of a few of the private practices which I had the opportunity of looking over.

The North-Western University Dental School now shares with the Medical School a very fine new building which is situated on the lake-front in Chicago. The erection of this building was made possible by a gift of $3,000,000.00 from Mrs. Montgomery Ward to the University in December, 1923, and Mrs. Ward has since given another $5,000,000.00 for the maintenance of the school and the endowment of teachers' salaries and research. The building consists of 14 stories with a large tower having five additional floors. The Medical School occupies the first to the seventh floors, the Dental School the eighth to the thirteenth, and the fourteenth is used for special experimental work by both schools, being equipped with accommodation and operating theatres for animal experiments.

In spite of the proximity of the two schools, there is not such a close co-operation between them as there is at Guy's. The Dental School, for instance, has its own dissecting rooms and laboratories, and pre-clinical subjects are taught to medical and dental students by different teachers. This, I think, is a distinct disadvantage.

The organisation of the Dental School and the internal planning of the various departments has been largely the work of Dr. Arthur D. Black. One special feature of the new building is the provision which has been made for post-graduate work. Each department has one laboratory and one room for clinical work, which are kept for those who come back from practice to attend courses in special subjects. There are short courses in conduction anæsthesia, porcelain jacket crowns, bridge work, the surgical treatment of pyorrhœa, etc., and longer ones in denture construction, orthodontics and oral surgery.

The Clinics on each floor are arranged in the same way. The central part is shut off by glass partitions from the rest and is used as laboratory space, and the operating spaces are arranged upon either side. In this way each chair faces an outside window and has the laboratory within easy reach behind it, which is particularly convenient in the crown and bridge and denture departments. The operating spaces are separated by partitions about 4 ft. high in which cupboard spaces are provided for all equipment (including electric engine, bracket, table, lamp and gas burner), which fold in and are automatically turned off. The height of the partitions secures privacy for the patient while leaving students and demonstrators a view of the room. Each space is also provided with a wash-basin with water operated by foot pedals, and it has another supply of water at body temperature. Chairs are allotted to the students in the various departments from a central office, which keeps a record of them. This arrangement, together with provision of loud-speakers in the club-rooms and laboratories and telephones in all the clinics, makes it possible to get through 'phone calls and messages to anyone working in the school.

The fees charged the patients are about five times as high as those charged at most English schools, and the school undertakes no responsibility to treat patients. If there is no student who wants the work the patient goes elsewhere. Furthermore, anyone is at liberty to apply to the school for treatment irrespective of his income. This has the effect of giving students greater opportunity of carrying out the more costly types of work, and it also means that some of them by the time they qualify will have a nucleus, however small, out of which practices of their own can be built. The school does not discourage this.

Each student keeps a record of the work he does in the various departments in his "day-book." For each completed piece of work he is given in points the number of dollars which the work is considered to be worth in practice. He also makes a note of the time spent upon each operation. At the end of each month he is given a note indicating the cost of the materials which he has used and also an estimate of other expenses—such as rent, heat, light, etc., which he would have incurred in practice. The data are thus provided for a complete book-keeping system which is made up and checked at the end of each month. The requirements which each student has to fulfil are expressed in so many dollars' worth of work in each department.

In the practical side of the course for the D.D.S., the separation of prosthetics from operative work is less definite than in our course for the L.D.S. This is an advantage in some ways, because it means that courses corresponding to our "phantom head" classes begin much earlier, and denture work is being done right up to the time of the final.

During the first year the only practical dental work which is done is technical work on models in the prosthetic laboratory. During the second year, as well as this, two and a half days each week are spent in the Operative Technique Laboratory, which corresponds to the Phantom Head Room at Guy's. This is a very well-equipped room, the units being arranged in a similar manner to those in the clinics as regards position of electric engine, lamp, etc. The jaws of the dummy are easily detachable, so that they may be kept in fluid when not in use, and undue access is prevented by a thick rubber sheet representing the positions of the soft parts. The technique which is followed is that described in Black's "Operative Dentistry," and stress is laid upon the use of hand instruments in preference to burrs and stones wherever possible. The system of the nomenclature for instruments devised by Black is used. In this system each instrument is represented by a formula of three numbers. The first indicates the width of the blade in tenths of a millimetre; the second, the length in millimetres, and the third, the angle of the blade with the shaft in centigrades (*e.g.*, Enamel Hatchet, 20-9-6). This course is a very thorough one, and the requirements are high. The practical work in the third and fourth years is entirely clinical and consists of extractions, conservative work and prosthetics.

THE ORAL SURGERY DEPARTMENT

This is arranged in two rooms, each containing four chairs, connected by a preparation room. In the latter, one of the nurses is in charge of the sterile table where instruments and charged syringes are always ready for use. Each chair is well equipped with an electric engine, bracket, table and lamp for reading X-rays. Every patient has a full mouth X-ray before any work is done. Muslin caps are used to cover the hair of each patient, and this routine certainly makes for cleanliness. Practically all work is done under local anæsthesia. There are several reasons for this :—

1. It is considered that less trauma results when local anæsthesia is used.

2. Never more than two or three teeth are removed at one time.

3. No tooth is removed in the presence of an acute inflammatory condition, since it is generally believed that in these cases there is considerable risk of carrying infection more deeply into the bone. The usual procedure is to attempt to establish drainage by means of incisions into the gum in the acute stage and to remove the offending tooth later when the trouble has subsided.

Novocain (2 per cent. solution) is the anæsthetic in routine use throughout the school, as it is at Guy's, and the technique taught for the various injections is very similar. For mandibular injections a ground-glass syringe is used and the needle is very much stouter than is ours. Tinct. iodo. mitis as an antiseptic has been replaced by "hexylresorcinol," which is colourless, odourless, non-irritating to the tissues, and is said to have a higher germicidal value. The upper forceps in use are similar to our own, though of a somewhat heavier build. The popular lower model is something like an upper "Reed" forceps, and appears very awkward to anyone accustomed to the "hawk's-bill" type, which is never used at the North-Western.

Surgical preparation of the mouth for dentures after extractions is adopted more often than it is at Guy's. The cases usually selected are: (1) Those when the alveolus in the anterior part of the mouth is very prominent, making the denture construction difficult; (2) those where the retention in the arch of a few teeth are much longer than their neighbours has resulted in very irregular absorption of the alveolus. An incision is made through the muco-periosteum along the crest of the alveolar process over the full length to be operated upon. The periosteum is raised from the bone, which is removed by means of a chisel to the required amount, mainly at the expense of the outer plate. The serrated edge of gum is then removed and the flaps sutured.

Cases of chronic general peridontitis are also more often treated surgically than they are at home. Only those are selected where local treatment with antiseptics and astringents has failed in the elimination of the pockets and these are considered unsuitable unless about half the length of the roots of the affected teeth are still embedded in healthy bone. Better results are naturally expected if the bone destruction is fairly even in depth over the area concerned. The method which is adopted is as follows :—

If the whole mouth is affected it is done in four sections, one side at a time—in other words, an area corresponding to about six teeth. A previous course of thorough scaling and treatment with antiseptics and astringents will have got the mouth into as hygienic a state as possible. The area is

anæsthetised with 2 per cent. novocain, usually by submucous injections. The depth of the pocket is then marked out around each tooth by probing with a blunt probe and piercing the gum at this level. These marks are joined by a continuous incision down to the bone both on the lingual and labial side. The instruments used for this are a set of four scalpels devised by Dr. F. W. Merrifield, two being planned for the labial surface and the other two for the lingual surface, which is always difficult of access. The clearing of all tissues above the line of the incision, particularly from the inter-proximal spaces, is facilitated by packing these spaces with gauze on the lingual side when the labial is being done, and *vice versa*. This also helps to control the hæmorrhage. When all the soft tissue has been removed, the roughened infected surface of the bone is chiselled away with enamel chisels until it is smooth. The spaces are then thoroughly syringed and dried out and the tissue which has been removed is replaced by a mixture of paraffin and bees'-wax for the first 24 hours to prevent the formation of blood clot. They are subsequently kept clean by treatment with hydrogen peroxide.

CONSERVATION WORK

In cavity preparation the technique described in Black's " Operative Dental Surgery " is rigidly followed, the hand instruments used being Black's set of 48 cutting instruments. In some of the other American schools this teaching has been considerably modified. Hand instruments are not boiled on account of their edges, but are sterilised by immersion in Metaphan C, of which vessels are provided for each operating space. The department is well provided with large metal models of the various cavity preparations. There is a strong prejudice against the use of the " silicate " cements. Practically all proximal cavities in anterior teeth are filled with gold foil. Matrix bands for amalgam fillings are cut from the sheet material, ligatured in position, and used in conjunction with a separator.

The popular method of making gold inlays is by the " semi-indirect " method. The following short description would refer to a typical Class II cavity, *i.e.*, a mesio-occlusal or disto-occlusal cavity in a molar or premolar. The cavity having been prepared, a thin nickel or copper ring is fitted around the teeth. This can be measured if necessary by means of thin iron wire, as in the making of an all-metal crown. The ring is then cut away lingually and bucally where it extends past the bulbous portion of the tooth, and, if the contact point is tight, it should be cut away here also until it just rests upon it. The ring is then further cut if necessary, so that it is just clear of the bite. The inlay wax which is used is the " Security " green wax, which is made by the Cleveland Dental Manufacturing Company. This is a rather easier wax to handle than the more brittle blue variety. The ring is filled with softened inlay wax, pressed into position on the tooth, and the approximating teeth closed upon it in order to get the articulation. When cool, the impression is lifted off by means of two excavators inserted under the lower edge of the ring, and it is cast in investment material. When this has set, the ring is removed by dividing it at a point opposite the cavity. The excess of wax can then be trimmed down and the matrix contoured as required. A sprue wire is inserted into the contact point and matrix and model are invested together. The advantages of this method are that the inlay is only one stage removed from the original cavity as in the direct method, but at the same time all the carving of the wax can be done outside the mouth. The disadvantages are: (1) that it is a little difficult to avoid injuring the edges of the model when carving the wax, even with the hardest investment material, and (2) that the position of the contact point is not definitely given (this, of course, is overcome either by overcontouring the inlay slightly and cutting it down in the gold or by adding gold solder if it is at all short). My own view is that the entirely indirect method—using " Kryptex " or amalgam models and a wax bite—is more convenient for routine use, because :—

1. It provides both contact point and articulation.
2. Any number of matrices can be made if there is any failure in casting the gold.
3. The inlay can be finished almost entirely before it is inserted.
4. For complicated inlays, unless some method such as the " wax expansion " technique is adopted for overcoming the contraction of the gold, it is necessary to have a model upon which to swage the completed inlay.

Root canals are treated in a special department, a sterile tray of instruments being provided for each case. X-ray photographs are taken before filling with a diagnostic wire in position and again after the root filling is completed. The surfaces of the rubber dam and the teeth included in it are painted over with tinct. iodi. fortis before any work is commenced. One wonders whether as good results are not obtained by concentrating upon the sterility of everything which actually enters the root canal rather than endeavouring to keep so large an area sterile.

Crown and bridge work are also done in a separate department, which is again very well provided

with models. Each step of all the routine procedures is represented by large models contained in glass cases. The type of bridge most commonly made is the so-called " fixed movable " type, *i.e.*, allowing slight movement upon the abutments.

Porcelain jacket crowns are made on both vital and non-vital teeth. In the latter case, when too much tooth substance is missing a gold core is built up on to a gold post which is inserted into the root canal. The following is an outline of the method adopted :—

1. The preparation is made by means of carborundum stones and discs and enamel cleavers, but before the step is cut a nickel ring is carefully fitted to the root above the gum margin.

2. An impression is taken within the ring with a cone of Kerr's Impression Compound.

3. The impression is cast in amalgam, the upper part being shaped in the form of a cone so that it will fit accurately into a plaster model.

4. The preparation in the mouth is covered with inlay wax and a full impression taken over it in plaster. The amalgam die will then fit into position in the inlay wax and the impression can be cast. A full impression is also taken of the opposing jaw.

The platinum matrix is made upon the model, and only the finer adjustments during the course of the baking need to be done in the mouth.

Porcelain inlays are not often made, and, when they are, are practically confined to gingival third restorations in anterior teeth. These are always made by the indirect method on amalgam dies.

PROSTHETICS

The technique for denture construction which is taught throughout the school is that described in full in Prothero's " Prosthetic Dentistry," fourth edition.

The Hanau articulator is in general use and the plain line variety is never used. The following is an outline adopted for full dentures :—

1. Impressions are built up in Kerr's composition by a combination of the open and closed mouth methods.

2. Vulcanite base plates are then made and fitted in the mouth.

3. Occlusion rims are built up on these base plates and the centric and protrusive relations are recorded and transferred to the Hanau articulator.

The teeth are set up and tried in, and then the cases are vulcanised upon the original base plates. Centric and protrusive records of the finished dentures are then retaken in the mouth. These are transferred again to the articulator, and the occlusion rebalanced, if necessary, by grinding in the teeth.

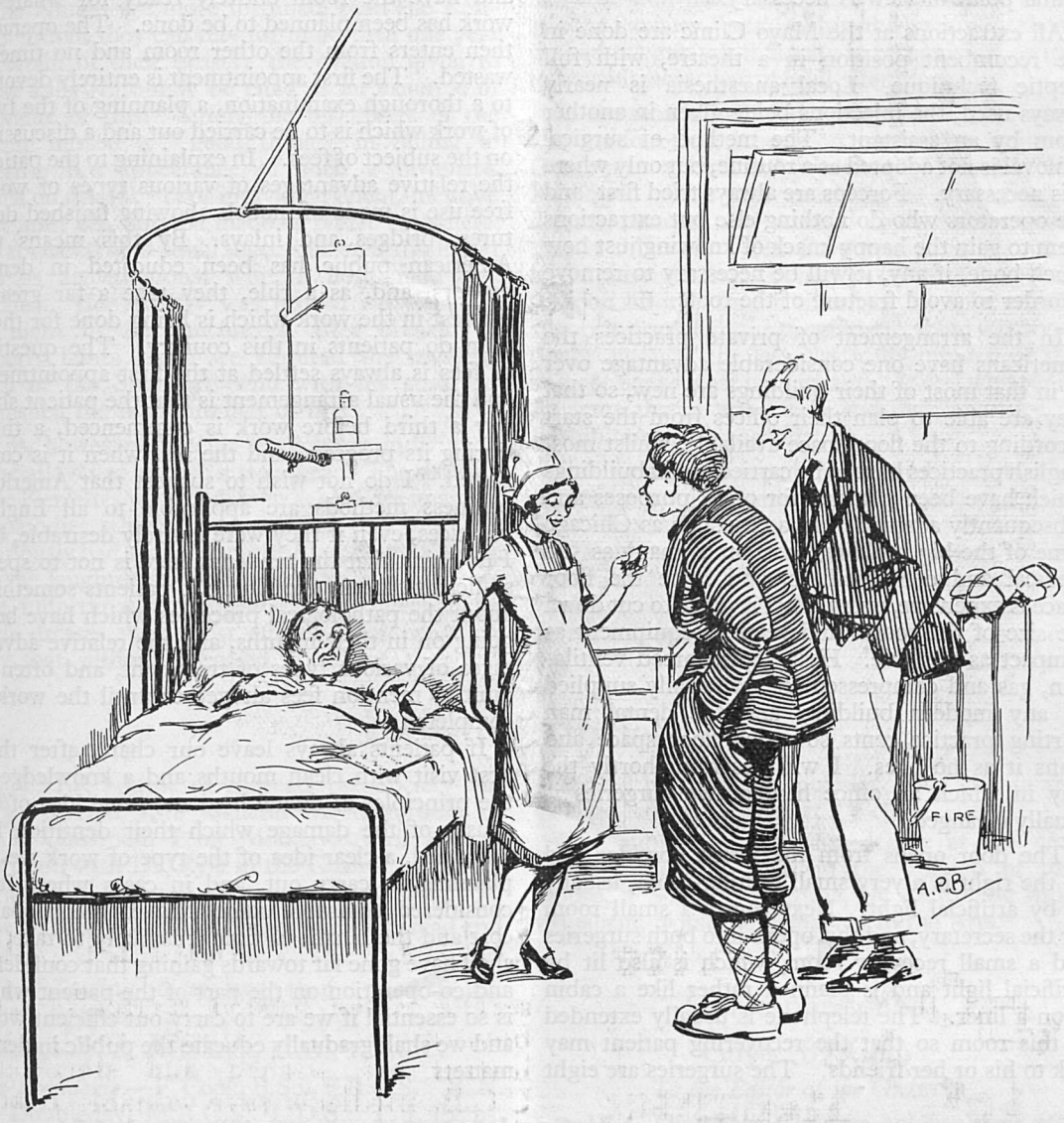
It will be seen at once that an independent dental school such as the North-Western is in an entirely different position from a school such as Guy's, which is part of a large general hospital and therefore has to combine the teaching of students with the charitable treatment of patients. Each must have its advantages and disadvantages. The former, perhaps, gives greater opportunity to students for carrying out the more costly types of conservation and restorative work, but it lacks, perhaps, some of the advantages which come from close contact with a large medical school.

The one outstanding feature, however, both at the North-Western and at other American schools is the stress which is laid on the practical side of the teaching. A very definite technique is evolved by the school for each operative procedure; this alone is taught, and the teaching is very greatly assisted, as indicated above, by permanent large demonstration models indicating the various steps. It may be argued that such a system is too rigid and lacks the variety which results from various teachers demonstrating the methods which they personally favour. I feel, however, that there is a great deal to be said for it, because it does ensure that at the end of his course each student is thoroughly conversant with at least one good method of doing the various things which he will be called upon to do in practice, and he is then in a position to modify his technique as occasion may demand.

The dental work of the Mayo Clinic consists entirely of the diagnosis and eradication of dental infection. Patients referred from the medical side mostly have their own dental advisers at home to whom they return for any conservative or prosthetic work that may be necessary.

A full mouth X-ray is taken of every patient and an attempt is made to grade dental infection with a view to preventing patients from having their dentitions ruined whilst other and, possibly, more likely sources of infection are overlooked. In the first two groups are included all teeth which should obviously be removed from the purely dental point of view and from the point of view of general infection. Under this heading are included all pulpless teeth showing pathological changes in connection with their roots and all cases of advanced bone destruction as a result of periodontal disease. The third group includes doubtful sources of infection such as pulpless teeth which show no radiographical changes, and those cases of slight destruction of the alveolar process in elderly people which may be partly infective and partly degenerative.

The first two groups of cases are dealt with when the patient is first referred from the medical



Nurses and Students gain a lot of experience at Guy's.

(We now understand why the respirations are invariably 20.)

side, but the third only after other sources of infection, such as tonsils and sinuses, genito-urinary and gynæcological infections, have been investigated and dealt with, and it is still considered that an absolutely clean bill of health from the dental point of view is necessary.

All extractions at the Mayo Clinic are done in the recumbent position in a theatre, with full aseptic technique. Local anæsthesia is nearly always used, the injections being given in another room by an assistant. The method of surgical removal is not adopted as a routine, but only where it is necessary. Forceps are always tried first, and the operators who do nothing else but extractions seem to gain the happy knack of knowing just how much bone, if any, it will be necessary to remove in order to avoid fracture of the roots.

In the arrangement of private practices the Americans have one considerable advantage over us in that most of their buildings are new, so that they are able to plan their offices from the start according to the floor space available, whilst most English practices have to be carried out in buildings which have been planned for other purposes and subsequently adapted. In a city such as Chicago some of the big buildings contain as many as 500 medical and dental offices, and since the floor space is expensive, every effort is made to cut down the size of the rooms and keep all equipment as compact as possible. Heat, light, forced ventilation, gas and compressed air are usually supplied by any modern building, and the dental man starting practice rents so much floor space and plans it as he likes. I will describe shortly the way in which an office having two surgeries is usually arranged.

The door opens from the inside corridor and on the right is a very small waiting-room, usually lit by artificial light. Next comes a small room for the secretary, and this opens into both surgeries and a small recovery room, which is also lit by artificial light and is planned rather like a cabin upon a liner. The telephone is usually extended to this room so that the recovering patient may talk to his or her friends. The surgeries are eight feet by eight and face an outside window, and equipment is usually arranged so that the operator can work in the sitting position.

It is the duty of the nurse or dental hygienist to get the patient comfortably seated in the chair and have the room entirely ready for whatever work has been planned to be done. The operator then enters from the other room and no time is wasted. The first appointment is entirely devoted to a thorough examination, a planning of the type of work which is to be carried out and a discussion on the subject of fees. In explaining to the patient the relative advantages of various types of work, free use is made of models showing finished dentures, bridges and inlays. By this means the American public has been educated in dental matters, and, as a rule, they take a far greater interest in the work which is being done for them than do patients in this country. The question of fees is always settled at the first appointment, and the usual arrangement is that the patient shall pay a third before work is commenced, a third during its progress, and the rest when it is completed. I do not wish to suggest that American business methods are applicable to all English practices, even if they were entirely desirable, but I do think that the tendency here is not to spend sufficient time in explaining to patients something about the pathological processes which have been going on in their mouths, and the relative advantages of various types of treatment, and often to omit to mention fees altogether until the work is completed.

If patients always leave our chairs after their first visit with clean mouths and a knowledge of the principles of dental hygiene, some idea of the causes of the damage which their dentition has sustained, a clear idea of the type of work we are planning to carry out, and in cases where it is considered advisable some idea of the probable cost and the length of time it is likely to take, we shall have gone far towards gaining that confidence and co-operation on the part of the patient which is so essential if we are to carry out efficient work, and we shall gradually educate the public in dental matters.

The Nurses' Concert

WHEN we last entered the Physiology Theatre it was to witness that successful production "Forensic Folly," by a dramatic society which is surely unique. Not only does it so far defy the lead set by one of our Universities who have admitted women members, but also the entire membership changes between each production.

We entered the theatre again the other night, and noticed with interest that, in accordance with the modern fashion, the proscenium had been entirely remodelled for the new production—in this case a concert given by the Guy's Nurses' League. It was distressing to find, however, that the stage was not the only thing which had undergone alteration. Where were the cushions which

at least take the edge off those uncomfortable seats? It cannot be that those responsible for the entertainment had so little faith in their labours that they feared to make the auditorium too comfortable.

The Nurses are more fortunate than the Residents in that they can rely for more than one year on certain of their artists; the ovation given to Nurse Lillywhite may be cited as an example of the value of this. Surely the promoters of the concert missed a "good thing" in failing to advertise the appearance of such a favourite. Whilst on the subject of individual talent, mention must most certainly be made of Nurse Longfield, who appeared with equal success in such dissimilar rôles as an emotional wife, a housemaid and Bacchus. Her artistry was proved early on the last night by her unconcern after breaking a property lamp. Also we admired the masterly touch of the Shepherd who with his stick extinguished the final glimmer of fire.

It is, however, difficult to pick out individuals where all was of so high a standard. The dancing of the Pierrettes was good, as were also, we imagine, the parodies which they sang, but, owing to the notoriously bad acoustics of the Physiology Theatre and the laughter of those nearer to the stage, we were, unfortunately, entirely unable to hear them. Their dresses were most effective, but we were sorry that, although dressed in yellow, they had tied up their hair in green, instead of sticking to the Guy's colours in which the other confectionery was wrapped. Nurse Lomax played the violin and Nurse J. Arthurton sang, both to the obvious pleasure of all present. Before the interval we had that well-tried favourite "Between the Soup and the Savoury," admirably acted by nurses whom we had the greatest difficulty in recognising, owing to considerable "structural alterations."

In the second half of the programme came what was undoubtedly the most ambitious item—a Greek play written and produced by Nurse E. M. Sanbrook. This was excellent in every way—dresses, dancing and acting. It was unfortunate that it followed "Old Favourites," as we were not in the right frame of mind to receive the poetic so soon after so much hilarity. In spite of the synopsis printed in the programme, there was some doubt amongst the less classically-minded of the audience as to what it all meant. It was whispered by some that it was a new and insidious type of Prohibitionist propaganda.

In a speech at the end, Matron told us that this concert was an attempt to raise £2,000 to endow Post-Graduate Study for a Guy's Nurse. If further efforts are as successful as this was, thanks to the hard work of all concerned under the able guidance of Sister Florence, we are sure that this object will very speedly be achieved.

S. P. A.

Debating Society

AFTER a lapse of 13 years the Society was revived at a General Meeting, held in Classroom I on Monday, April 4th, at 4.30 p.m., with Dr. Ryle in the Chair.

The Minutes of the last meeting, which took place on December 11th, 1919, were first read and signed!

The following officers were then elected subject to their acceptance:—

President.—J. A. Ryle Esq., M.D., F.R.C.P.

Vice-Presidents.—F. Cook, B.Sc., F.R.C.S.; F. N. Doubleday, M.R.C.S., L.D.S.; T. J. Evans, M.A.; G. F. Gibberd, M.S., F.R.C.S.; T. B. Layton, D.S.O., M.S.; E. G. Slesinger, O.B.E., M.S., F.R.C.S.; A. R. Thompson, Ch.M., F.R.C.S.

Secretaries.—W. P. Stamm and E. Dunstan.

Committee.—C. Baker, A. G. Hill, O. Lythe, M. S. McArdle, D. McKay, W. N. Mann.

It was then decided that one meeting should take place before the end of the session and that it should be held on Thursday, May 5th, in the College Smoking Room at 8 o'clock.

The subject selected for debate at the next meeting was: "That, in the opinion of this House, a Socialistic regime, by destroying individualism, would be damaging to the Arts."

Correspondence

Guy's '89 Club

To the Editor of the GAZETTE

SIR,—The above Club are holding their 36th Dinner and Meeting at the Carlton Hotel, Pall Mall, S.W.1, on Wednesday, 11th May. Dr. Cecil A. Ensor will preside. Will all the members please make an effort for the Dinner to be a success? Notices will be posted in due course.

Yours, etc.,

GERALD S. HOVENDEN,
Hon. Secretary.

Glebeholme,
Barnes, S.W.13.

Hospital Information, etc.

Pass List

CONJOINT BOARD.
PRE-MEDICAL EXAMINATION.
March, 1932.
PART I.
Chemistry and Physics.

E. R. Brown
G. M. A. Brown
*D. C. J. Constable
H. H. Crabb
J. S. W. Drylands
W. I. N. Forrest
†E. F. Gleadow
D. Graham Brown
*G. N. Hall Jones
D. Hankey
D. W. Harvey
D. C. Light
†T. J. M. Lowry
†G. J. Marchant
J. R. Miles
*K. H. Mummery
†R. D. Pett
G. F. J. Rees
†A. E. A. Shaw
*R. G. Siggers
A. J. Smith
†C. W. Stewart
K. J. Tovey
*D. Tudor Williams
F. A. J. Woodland

* Chemistry only. † Physics only.

PART II.
Biology.

A. O. Chick
P. M. Davies
C. D. Farris
N. L. Forrester
M. E. Gascoine
D. Graham Brown
D. Hankey
A. G. W. Hill
G. A. B. Hoby
R. G. Kett
D. C. Light
D. W. Macfarlane
J. R. Miles
R. S. Pook
A. E. A. Shaw
A. J. Smith
E. L. Sutton
D. Tudor Williams
A. C. R. Wakeman
F. A. J. Woodland
W. G. Zorab

L.D.S., R.C.S. (Eng.).
SECOND PROFESSIONAL EXAMINATION.
February, 1932.
PART I.
General Surgery and Pathology.

G. W. B. Bateman
A. C. Fuller
R. T. Garner
H. Gibbs
H. D. Goldin
E. R. Heathcote
T. Helmes
P. K. Robinson
N. A. Stanger

PART II.
Dental Surgery and Pathology.

J. H. de Mierre
J. C. Fry
K. C. Gibbie
S. S. Gill
H. D. Goldin
G. G. Hardie
A. W. Holman
C. W. Holmden
. Law
E. H. Lewis
C. C. R. Mailer
K. C. Moss
G. E. Paxon
S. R. Peatfield
M. W. Pilcher
L. H. Smith
C. R. Stone
U. L. W. Whitling
E. V. B. Widdowson

LONDON UNIVERSITY
SECOND EXAMINATION FOR MEDICAL DEGREES.
March, 1932.
PART I.

O. B. Alakija
G. L. Burgess
C. S. Darke
V. Drosso
H. R. W. Franklin
D. L. V. Fraser
D. F. Freebody
N. W. Gardener
H. R. S. Harley
S. Jackson
H. M. Kelsey
F. L. E. Musgrove
W. M. Philip
F. E. Pitt Payne
E. Sayle
G. N. Wright

PART II.

H. Cameron
D. A. Davies
G. C. Denny
J. R. Forbes
J. A. J. Hammond
J. C. Henry
T. H. Hills
N. W. Irish
G. H. W. Keates
F. R. Kilpatrick
F. B. Lake
W. N. Mann
J. H. Mayer
W. J. Mitchell
F. O. Potter
J. E. Spalding
A. B. Wayte
F. H. Weston

Papers by Guy's Men

A. T. Fripp. Immediate treatment of ambulatory fractures and dislocations. *Clin. Jour.*, 1932, lxi, 145, 163.

J. C. McNeill. Fracture of maxilla. *Brit. Dent. J.*, 1932, liii, 1, 464.

R. Cutler. New preparation of British stainless steel. *Dent. Rec.*, 1932, lii, 178.

Hugh Barber. Aperients and the colon. *Clin. Jour.*, 1932, lxi, 157.

Change of Address

O. Plowright, M.B., B.S., 9*a*, Church Row, Hampstead, N.W.3. *Hampstead* 2660.

J. A. Simons, M.R.C.S., L.R.C.P., White Lodge, Crowborough, Sussex. *Crowborough* 281.

W. M. Bigby, M.B., B.S., 53, South View Road, Southampton. *Southampton* 71604.

Births

SMITH.—On April 2nd, 1932, the wife of Ronald E Smith, M.B., M.R.C.P., of 3, Horton Crescent, Rugby—a son.

STILL.—On March 8th, 1932, at Bareilly, to Vera, wife of Capt. R. M. Lloyd Still, Indian Medical Service—a daughter.

TOWNSEND.—On March 17th, 1932, at 27, Welbeck Street, to Dr. and Mrs. C. G. Townsend, of Beaconsfield, Bucks—a daughter.

Marriage

BLAIKLEY—JOHNSON.—On April 2nd, 1932, at St. Stephen's, Guernsey, John Barnard Blaikley, F.R.C.S., to Vivien Maude, younger daughter of Edward Odlum Johnson, O.B.E., I.S.O., formerly of Sierra Leone.

RIDSDALE—KIRBY.—On April 9th, 1932, at St. Bartholomew's Church, Haslemere, George Knowles, younger son of Mr. and Mrs. A. G. Ridsdale, of Blackburn, to Margaret Lyell, younger daughter of Mr. and Mrs. W. L. Kirby, of Haslemere.

BIGBY—NEW.—On April 9th, 1932, at Southwark Cathedral, by the Rev. Edward Royle (Acting Chaplain, Guy's Hospital), Dr. William Louis Murray Bigby, only son of Mr. and Mrs. L. I. M. Bigby, of 27, Winn Road, Southampton, to Hilda Marian, younger daughter of the late Mr. and Mrs. G. H. New, of Cheltenham.

EDS. { J. S. B.
G. A. M.L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLVI 30*th April* 1932 *Number* 1142

PASSIM

IT has long been recognised that there exists a large section of the general public who, in times of illness, are unable to pay nursing-home expenses and the associated fees, and yet who are in a better financial position than those usually deemed eligible for hospital treatment. The present financial depression has swelled the ranks of this class beyond measure. It is therefore particularly fortunate that the British Provident Association should have just launched a scheme, on a co-operative basis, to deal with the hospital problem of the middle classes. The Association lays stress on the fact that whereas nearly everybody insures against damage to their property, yet comparatively few make similar provision against breakdown in health. The reason for this apparent inconsistency is attributed to the fact that, up to the present, no attractive scheme for achieving the latter has been available.

The investigations of the Association, extending over a period of ten years, show that to found a properly equipped private bed costs £1,000. Such a bed would be sufficient for the requirements of a hundred families. Thus, under this founders' scheme, each family would be called upon to contribute £10 in order to ensure available accommodation at an economic rate in time of illness.

Furthermore, a plan has been perfected whereby each member may make an annual subscription which will cover the expenses of surgical and medical fees during the period in hospital. A combination of these two schemes, it is claimed, will solve the problem of patients of moderate means.

There must undoubtedly be many people who would willingly avail themselves of such an opportunity of ensuring for themselves skilled hospital treatment without being dependent on charity to obtain it.

That many patients who at present seek the services of voluntary hospitals could well afford to come under some such scheme as that outlined above, no one who has wended his way through the wealth of cars in the Quadrangle on Wednesday and Sunday afternoons could possibly deny.

Not only would this scheme be of advantage to the patients themselves, but it would be of great benefit to the hospitals.

Voluntary hospitals are at the present time passing through a very difficult phase in their existence. With taxation as it is now, large donations and legacies are bound to grow scarcer. It does seem that their salvation is to be found in the attraction of a large number of small and regular contributions. It is to be hoped that the hospitals in this country will see their way to placing some of their beds at the disposal of the contributors to the British Provident Association in order that a thorough trial may be given to their well-considered scheme.

▭

ON Thursday, April 14th, the Hospital was honoured by an unofficial visit from the Prince of Wales, who was present to preside over a special meeting of the Board of Governors. At the conclusion of the meeting he was conducted through the new Out-Patient building, where he inspected the various departments. He also paid a visit to the Nurses' Home, and to the recently completed Revelstoke Memorial Library. We feel that the interest displayed by the Prince in the affairs of the Hospital will afford great pleasure to all those who have the welfare of the Hospital at heart.

▭

THE Annual Dinner of the Rugby Club will be held at Gatti's Restaurant on Thursday, May 12th, at 7 p.m. The Chair will be taken by the President, Mr. F. J. Steward, and tickets may be obtained from the Honorary Secretary, Mr. I. G. Robin, or the Medical School Office. The price of tickets is 6*s*. 6*d*. each.

A DANCE is being held by the Staff Nurses in aid of the "Sir Cosmo Bonsor Memorial Fund," which is to endow a scholarship for a post-graduate course for Guy's nurses. This dance will be held in the Hall of the College of Nursing, 1A, Henrietta Street, Cavendish Square, on Monday, May 9th. Mr. and Mrs. Hughes have kindly consented to act as host and hostess. Tickets (single, 7*s.* 6*d.*; double, 14*s.*) may be obtained from Mr. G. V. Steward or the Staff Nurses.

WE should like to remind our readers that the first meeting of the Debating Society, following its revival after a lapse of 13 years, will take place Thursday, May 5th, in the College Smoking Room at 8 o'clock.

THE following appointments have been confirmed by the House Committee :—

House Physicians—
To Dr. Hurst—W. H. Greaney.
To Dr. Mutch—E. Sharp.

House Surgeons—
To Mr. Rowlands—T. F. Todd.
To Mr. Hughes—K. Biden-Steele.

Out-Patient Officers—
A. M. Cantor. J. Howell.
G. W. Hall-Smith. C. E. R. Wood.

Assistant House Surgeons—
To Mr. Davies-Colley—W. P. Stamm.
To Mr. Bromley—W. H. Owles.
To Mr. Slesinger—W. H. Lewis.
To Mr. Ogilvie—G. H. Taylor.
To Mr. Doherty—E. H. de D. Crowther-Smith.

House Surgeon to Mr. Mollison—R. T. Elvin.

House Physician in the Children's Department—
H. A. Constable.

House Physician in the Neurological Department—
D. H. Irish.

Obstetric Residents—
To Mr. Chapple—K. S. Southam.
To Mr. McNair and Mr. Cook—D. W. James.

Clinicals—
C. G. Baker. R. E. Reid.
R. J. Gilchrist. J. R. S. Sharp.
A. J. Grace. L. M. Silverstone.

Obituary

DR. GEORGE HERBERT METCALFE

THE passing (at Clare, Suffolk, on March 15th) of my old friend "Bertie" Metcalfe removes from the scene "an old Guy's man" who has, for over 40 years, been an ideal representative, in a large country practice, of his *alma mater*.

Metcalfe was the son of the late Rev. Moorhouse Metcalfe, of Hereford, his mother (a wonderful old lady of 92 years) being still alive. He was educated at Hereford Cathedral School, coming from there in 1882 to Guy's, where he qualified in 1888, and soon afterwards commenced practice as *locum tenens* for Dr. Barnes, of Clare, acting in that capacity for about six months.

Evidently attracted by the neighbourhood, he then bought a practice which fell vacant at Lavenham, but returned to Clare in 1891, and gradually took over the practice from Dr. Barnes, who was retiring. Incidentally it may be mentioned that Metcalfe's original attraction to the neighbourhood might perhaps be largely explained by the sequence of his wedding in 1890 to Dr. Barnes's daughter, a lady who contributed largely to her husband's success and popularity, and who now deserves our very warm sympathy, to be shared with their only child, the wife of Captain Leslie Emsden (the Norfolk Regiment).

Dr. Metcalfe's death invoked a really remarkable demonstration of regret and respect, as evidenced by articles in the local press, letters from representatives of all classes, and the presence of a very large gathering at the funeral (on March 18th), which I had the sad privilege of attending.

There were general signs of mourning in Clare, and the large and beautiful Parish Church was crowded, many people being unable to gain admittance. The funeral procession from the house was headed by members of the Clare Fire Brigade and Clare postmen, followed by representative Freemasons and tradesmen; Boy Scouts with their draped flag stood at the church entrance as a Guard of Honour, and the school-children of Clare paid a touching tribute at the grave-side to the memory of a kindly, genial and efficient doctor.

In evidence of Dr. Metcalfe's energy and versatility it may be added that he acted for many years as Vicar's Warden of the Parish Church, was a Past Worshipful Master of the Royal Clarence Lodge of Freemasons, and at one time Chairman of the West Suffolk Division of the B.M.A. He was also keenly interested in all sport, and held office in almost all the local clubs and societies.

A special request from the family was made for "contributions in aid of Guy's Hospital" as an alternative to floral tributes, and I am informed that this appeal resulted in the sum of £60, which (in accordance with a suggestion from Mr. Eason) will be invested for the establishment of a "Metcalfe Prize" for Guy's Nurses—a fitting reminder of one who always upheld the best traditions of our fine old hospital.

Two Cases of Head Injury

By E. C. Hughes, Esq., O.B.E., M.Ch.

I HAVE recently had under my care a case of extra-dural hæmorrhage, and as it was a typical case I thought I would discuss it with you and contrast it with another case, one of sub-dural hæmorrhage, which I saw when a ward clerk.

A male, aged 42, was admitted on March 29th at 5.15 p.m. He had been involved in an accident at his work and had been momentarily stunned. The details of the accident were vague, but apparently his head had become caught up in the wire hawser attached to a winch.

In the Front Surgery, where he was detained for an hour, he was still suffering from slight shock, but was conscious of his surroundings and answered questions readily. There was superficial abrasions on the left side of the scalp and chin. Tenderness was complained of when the right temporal region was palpated, though no scalp injury was present in this situation. His pulse was 80 per minute, but of poor quality.

He was admitted to the ward, and half an hour later, *i.e.*, one and a half hours after his accident, he vomited on three occasions, and weakness of the left arm developed at the same time. He was also noticed to be more drowsy and the pulse rate 64. Some two hours later, the weakness of the left arm developed into a complete paralysis, and at this time the left side of the face was definitely weak. Half an hour later the left leg was losing power, but this weakness was only temporary and was not noted again. No other abnormal signs were noticed; no alteration of the pupils, nor of the superficial or deep reflexes.

At midnight he became excited and noisy, and was given paraldehyde and later morphia.

The next morning he was quiet and coherent; the paralysis of the left upper limb and left side of the face persisted, while the pulse rate remained about 60-70 per minute. A lumbar puncture showed the cerebro-spinal pressure to be increased to 220 mm. of water, while the fluid was clear, but on examination showed a slight increase of white cells, protein, and a few red cells.

The sequence of events in this case was :—

1. Concussion. The period of unconsciousness was very short, but definite, for he had no recollection of the accident.

2. An interval, the lucid interval, when there were no obvious symptoms and the patient was apparently recovering. This interval lasted one and a half hours.

3. Then the development of signs indicating grave intracranial damage: the paresis, then paralysis of the left arm, the paresis of the left side of the face, the temporary paresis of the left leg, the drowsiness and the slowing of the pulse rate.

We will now consider the explanation of the progress of these events. The primary concussion, characterised by its instantaneous onset, the loss of consciousness, and the circulatory failure had to a large extent passed off when the patient reached hospital.

We must remember that no surgeon at this stage can determine whether any intracranial damage has been sustained, and it is therefore wise to admit into the ward every case of concussion, however trivial it may seem, for observation.

During this stage of shock, the blood pressure is low, and bleeding, if any vessels have been damaged, will be taking place comparatively slowly; anything that tends to raise the blood pressure will make the bleeding more active. This we keep in mind when we are treating the patient at this stage. The patient is kept flat in bed, warmly covered up; an ice-bag is applied to the head, and a purge administered. He is kept as quiet as possible, no visitors are allowed, and as little examination and disturbance of the patient as is possible is carried out. All stimulation is avoided. The diet is fluid, and restlessness is controlled by bromides.

The lucid interval.—On a previous occasion I have discussed with you the views of Trotter on the mechanism of the cerebral circulation. He points out that this circulation is carried out within a rigid capsule of bone; when bleeding occurs within the cranium, the blood can only be lodged at the expense of some of the cranial contents, which must be displaced. The contents which are displaced are those under lowest pressure, which are the blood in the veins and sinuses, and the cerebro-spinal fluid. Since the total capacity of the veins and sinuses is very much greater than that of the arteries, the expulsion of cerebro-spinal fluid and venous blood can go on up to a certain point without the circulation being in any way embarrassed. This point is reached when the total venous outlet is reduced to a size just smaller than the total arterial outlet. Up to this point there is no venous congestion; beyond this point the exit from the veins becomes increasingly difficult, and the cerebral and other veins become more and more engorged with blood. If the cortex of the brain is seen at this stage, it is cyanotic, and it is during this stage that the clinical symptoms of irritation appear. If bleeding continues, it must displace still more of the normal cranial contents, and the next fluid to be displaced is the blood in the cerebral capillaries, and this involves compression of the brain itself, which becomes

anæmic. This anæmia of the brain is accompanied by the clinical symptoms of paralysis.

The lucid interval is the period of time between the passing off of the initial concussion, up to the point when the total venous exit is reduced to the size of the total arterial inlet. Beyond this point, the lucid interval, the interval without symptoms, comes to an end.

The quieter the patient is, the less stimulation he receives, the longer the interval is likely to be.

The third period.—The development of intracranial signs. This was ushered in by the act of vomiting, which caused a rise of blood pressure. I think that at this point the bleeding must have increased rapidly, because the weakness of the left arm was noticed immediately afterwards. This weakness and the subsequent paralysis indicated that the motor area of the left arm centre was being directly pressed on; as a result of this pressure the blood was expressed from the cerebral capillaries and paralysis resulted.

The weakness of the left side of the face and the lower limb indicated pressure on the right Rolandic area over the corresponding adjacent areas. The irritative symptoms of venous congestion of the brain were the temporary excitability, the drowsiness and the slow pulse.

The raised cerebro-spinal pressure, ascertained by a lumbar puncture, confirmed the view that there was a definite increased intracranial pressure.

This case then appears to be one of progressive intracranial bleeding, and its course—the initial concussion, the lucid interval, and then the appearance of irritation and finally of paralytic symptoms—is typical of extradural hæmorrhage.

Operation was therefore decided upon, and when the skull was exposed a fissured fracture of the anterior part of the right parietal bone was revealed, and on trephining the skull a large extradural hæmatoma was found, due to a torn tributary of the anterior branch of the middle meningeal artery. The patient is making a satisfactory recovery, the left arm having recovered its power on the morning following the operation.

Operation must not be delayed in such a case of progressive intracranial bleeding, as the intracranial pressure is steadily increasing, and will show itself all too soon by grave signs of congestion of the medulla, in addition to those of the cerebrum and mid-brain. If delayed too long the patient will become comatose, with Cheyne-Stokes respiration, a very slow pulse and rising blood pressure. The next stage, the final stage, is that of medullary anæmia, when the pulse rate begins to rise rapidly, with shallow, panting respiration and a falling blood pressure.

The second case is that of a man, aged 53, who was admitted to the ward on September 7th, 1903, suffering from concussion. He had fallen when mounting his van, and had struck his head on the ground. He remained unconscious for one hour, and was found to be bleeding from the right ear. For the next few days he was restless and difficult to control, answered questions incoherently, and was frequently getting out of bed. His temperature for the first three days varied between 100° F. and 103° F. He was restless and talkative. Sometimes, after taking his fluid diet, he would fall asleep with extreme suddenness.

This restless and excited condition continued for eight days, when a left-sided fit occurred, lasting for three minutes. The fit began by the patient rolling on to his left side, the left arm then began to twitch, and then the left side of the face and left leg. After the fit, the left side of the body was temporarily paralysed..

Two days later, *i.e.*, ten days after the accident, 14 fits of the same nature occurred in 15 hours, and patient became unconscious. At this point operation was decided upon.

The symptoms in this case are clearly those of cerebral irritation due to a raised intracranial pressure; the restlessness, the excitability, the incoherence, the lack of control, the left-sided fits and the raised temperature are all the results of venous congestion of the brain. The fits on the eighth and tenth days indicated a rising intracranial pressure, which continued to increase up to the point of producing unconsciousness.

This case was observed nearly 30 years ago, when cerebro-spinal fluid pressure readings were not taken. Had these readings been taken, there is no doubt but that a greatly increased pressure would have been noted in the early days following the accident, and active measures would have been taken to diminish the pressure. If saline dehydration and repeated lumbar punctures had failed to control the cerebro-spinal fluid pressure, an early subtemporal decompression, which includes an opening of the dura mater, might have been an effective means of reducing it.

The operation disclosed, after trephining, a tense, non-pulsating dura mater, which, on incision, allowed the escape of dark blood under considerable pressure.

The operation did not save the life of the patient, who died two days later, and at the post-mortem a limited amount of blood-clot was found over the surface of the right Rolandic area.

This case is a typical picture of a localised subdural hæmorrhage; its course being the primary concussion, then the condition of cerebral irritation due to raised intracranial pressure, which may last one or two weeks, and, finally, signs of a localised compression of a severer grade, appearing suddenly, in the form of left-sided Jacksonian fits.

Hæmorrhage in Jaundiced Patients

A Paper read before the Guy's Hospital Physical Society on 10th December, 1931, by J. C. Colbeck, Esq.

(*continued*)

FIBRINOGEN

IN cases of acute yellow atrophy of the liver the blood may be quite incoagulable, and it has been shown that there is a marked deficiency of fibrinogen in the blood. In liver necrosis due to chloroform and phosphorus the blood fibrinogen values may fall to very low levels, or even be completely absent (Doyon and Whipple and Hurwitz). These conditions are associated with a marked hæmorrhagic tendency, both clinically and experimentally. Schultz, Hall and Baker found that most dogs dying early in experimental chloroform poisoning showed bleeding into the peritoneal cavity. They also found that with chloroform poisoning (either after anæsthesia, ingestion by mouth, or portal injection) there was a marked fall in blood fibrinogen, which was proportional to the degree of liver damage. Those animals which recovered showed a gradual return of the fibrinogen values to the normal level. There was a slight rise in blood fibrinogen following slight liver injury.

Foster and Whipple have shown that injury to all tissues except the liver produces a rise in blood fibrin. Similar results to those of Foster have been obtained by Cullen, Van Slyke and Gram.

It is obvious, then, that we have here an adequate explanation for the hæmorrhagic tendency in severe liver damage. It seems useless to discuss the possible causes of delay in the process of coagulation, if we are dealing with a blood which does not contain the material necessary to the formation of a clot. It is significant, however, that a rise in blood fibrin may be produced by slight liver damage, as was found by Whipple, Doyon and others. Examination of sections from the livers of patients dying after obstruction to the bile ducts shows, as we have said, definite damage to the liver parenchyma. The amount of necrosis in certain cases is very great, and does not appear to have been stressed sufficiently in this country. The necrosis is most marked when the obstruction has been produced by a malignant condition such as carcinoma of the head of the pancreas. Yet the amount of necrosis is usually much less in extent than is commonly seen in fatal cases of chloroform and phosphorus poisoning.

The blood fibrin in mild cases of arsphenamin jaundice is either normal or slightly raised (Foster); in severer cases, and particularly in those terminating fatally, low values occur. Dr. Lloyd tells me that he has never observed a tendency to hæmorrhage as shown by the development of a hæmatoma at the site of a veni-puncture in the mild cases of jaundice following the administration of arsenicals.

Eclampsia is a disease in which liver damage is associated with a tendency to capillary thrombosis, and though interstitial microscopical hæmorrhages are characteristic of this condition, there appears to be no undue tendency to bleed from wounds such as an incision for cæsarean sections. These observations may be correlated with those of Foster, Dienst and others, who have shown that in this condition the blood and plasma fibrin is markedly raised.

Foster records two cases of acute obstruction of the bile ducts associated with high fibrinogen values. Weiner and Weiner record cases of obstructive jaundice and cholelithiasis without jaundice in which the plasma fibrinogen was lower than the lowest normals. He also found a very low figure (approximately one-third of the lowest normal figure) in a case of hepatitis, apparently due to chronic sinusitis.

Low values have been reported in cirrhosis by Pickering, Weiner and Weiner, and Foster. Weiner showed that in some cases of cirrhosis of the liver there was a slightly raised fibrinogen early in the disease, and that there was a fall also in the plasma albumen. As the disease progressed the fibrinogen values fall to normal levels or below. He also showed that in cases in which liver damage was complicated by infection, there was no rise in the fibrinogen value, such as is observed in cases with normal livers, and that there was no rise in the other serum proteins—he believes that the alteration in the fibrinogen globulin ratio is characteristic of liver damage.

The number of estimations performed on patients with obstructive jaundice is very small, yet it appears that (1) some cases of obstructive jaundice are associated with an abnormally low blood fibrinogen; (2) that such damaged livers are incapable of responding in the normal manner to a demand for a raised blood fibrinogen.

We do not know, however, to what levels the blood fibrinogen must fall before a hæmorrhagic tendency is produced. Whipple has shown that the clotting time does not vary proportionally to the blood fibrinogen, and that with low fibrinogen values the clots may be too weak to act efficiently

in hæmostasis, even when the clotting time is not significantly prolonged.

This may be connected with the fact that a marked tendency to hæmorrhage may be present in jaundice without any abnormality in the clotting time.

It is not surprising to find that all cases of obstructive jaundice do not show a lowered fibrinogen value, for the hæmorrhagic tendency in this condition is not constantly present. On the contrary, one must rather expect to find an explanation in a change which is infrequently present to a marked degree.

It may be said that the explanation of the hæmorrhagic tendency :—

1. In acute yellow atrophy and other severe liver necroses is adequately explained by the deficiency in blood fibrinogen.

2. With regard to other conditions, such as obstructive liver lesions, the question remains unsettled, though there is sufficient evidence to suggest that the solution of the problem may lie in a deficiency in blood fibrinogen and to justify further investigations.

THE POSSIBILITY OF AN ANTICOAGULANT

The possible secretion by the liver of an anticoagulant, heparin, has been mentioned previously. Howell believed that the fluidity of the circulating blood under normal conditions was maintained by the secretion of this substance by the liver. Objections have been made to this theory by many physiologists. Among these objections it has been stated that in perfusion of the liver we are not dealing with a normal organ, but with one in which cells have already begun to die. This is a fair criticism, yet such a liver is probably nearer to the normal state than many livers with obstructive lesions in which areas of necrosis can be demonstrated. Whipple claims to demonstrate the presence of excessive quantities of antithrombin in the blood in liver damage. Hartman states that the conversion of proserozyme to serozyme is delayed in chronic jaundice by a substance present in the blood plasma.

It has already been said that the injection into the systemic blood vessels either of whole bile or of certain of its constituents fails to produce incoagulability of the blood.

If 1 c.c. of bile per kilo body weight be injected into the mesenteric veins of the dog the blood rapidly becomes incoagulable. The same result was obtained by the injection into the mesenteric vein of 1 c.c. of 10 per cent. taurocolic acid per kilo body weight. These figures are very low compared with the values required to inhibit the coagulation of the blood "in vitro" by the addition of bile or bile salts.

The anti-coagulant action of the bile does not appear to be specific. Doyon also found that injection of 1/100 grm. of atropine per kilo body weight into the mesenteric vein or hepatic artery of the dog produced incoagulability of the blood, while no effect was observed when the injection was made into the saphenous vein, or the splenic or renal arteries. (It must be noted that injections of atropine into the mesenteric veins of guinea-pigs and rabbits does not affect the coagulation of the blood.)

Stimulation of the depressor nerve of starving rabbits produced incoagulability of the blood, though this effect is not observed in the well-nourished animal.

Denney and Minot found that stasis of the blood in the liver caused an increase in the anti-thrombin content of the blood, and that this result was not obtained with other organs.

Simonds and Brandes found that if the hepatic veins of the dog were obstructed the clotting time of the blood was shortened while the obstruction was continued, and was lengthened when the obstruction was released.

Menten has shown that the coagulation of the blood is not definitely affected by the injection of Witte's peptone after hepatectomy.

Cranston and Caillet have shown that if the hepatic veins of a dog are constricted and Witte's peptone then injected there is no delay in coagulation, but that on release of the obstruction there is marked delay and the shed blood may remain uncoagulated for 24 hours. This is associated with :—

1. A fall in the platelet count to about one-tenth its previous value, which, however, rises again without any corresponding shortening of clotting time.

2. A rise in the anti-thrombin content of the blood.

According to Foster and Whipple, the fibrin content of the blood is lowered less than 10 per cent., while Zunz (1926) states that the fibrinogen values may be increased.

Pickering has recently demonstrated by means of improved technique that peptone can inhibit the coagulation of shed blood in the same concentration as is required by injection. His findings await confirmation.

What then is the common factor, if any, in all these observations? Engorgement of the liver is caused in certain animals by injection of atropine into the portal vein. Peptone also produces engorgement of the liver (Cranston and Caillet). Congestion, however, is not produced by injection

of bile into the mesenteric vein or hepatic artery. The common factor must be some action either on the blood vessels or on the liver parenchyma. All attempts to isolate an anti-thrombin from freshly prepared tissues of blood vessels have failed, however, and one must therefore conclude that some damage to the liver parenchyma is the common cause of the incoagulability.

Pickering says that the results suggest that in animals possessing a very active nitrogenous metabolism self-autolysis may be stimulated, leading to the production of an anti-thrombin.

PLATELETS

It may be said with regard to the blood platelets that there is no evidence of a quantitative deficiency either in obstructive jaundice or hepatic necrosis associated with severe hæmorrhagic tendencies. It is possible, however, that a qualitative alteration may obtain. This is suggested by the fact that capillary oozing is the most usual type of hæmorrhage in obstructive jaundice. The first stage in the stoppage of capillary hæmorrhage is platelet agglutination at the mouths of the severed vessels, assisted by a contraction of the vessels.

The part played by the platelets in the control of capillary hæmorrhage has been much stressed by Duke and others, but is opposed by MacKay on consideration of platelet counts in various conditions.

It will be recalled that heparin is capable of preserving platelets intact—in vitro—for 24 hours.

GENERAL CONCLUSIONS AS TO THE CAUSATION OF THE HÆMORRHAGIC TENDENCY

It appears :—

1. That the weight of evidence is opposed to the view that a deficiency of calcium, diffusible or otherwise, in the blood is the cause of the hæmorrhagic tendency in jaundice.

2. That the circulation of neither bile salts nor bile pigments *per se* can produce this tendency.

3. That a deficiency of fibrinogen is definitely causal in severe liver necrosis, and that there is evidence to suggest that a similar process may be the cause of the hæmorrhagic tendency in other types of liver damage, such as obstructive liver conditions, and diffuse hepatitis.

4. That the circulation of an anti-coagulant produced by damage to the liver may play an important role, and justifies further consideration.

Consideration of the above facts will convince one that all we can say of the cause of the tendency to bleed in obstructive lesions is, as Professor Nicholson has said of the cause of tumour formation, " Ignoramus," a conclusion which forms a poor basis for a system of rational therapy.

THE CLINICAL OCCURRENCE OF THE TENDENCY TO HÆMORRHAGE

There appears to be no absolute relation between the length of time which an obstruction has been present and the tendency to hæmorrhage. Thus some patients with jaundice of long standing show no excessive tendency, while others with recent obstruction show the tendency to a marked degree. Generally, however, it is agreed that the longer an obstruction has been present the more liable is this tendency to appear. Petrén found that out of 58 patients dying of hæmorrhage following operations for the relief of biliary obstruction, 50 had been jaundiced for more than three weeks. Rovsing advises immediate operation on patients with unremitting jaundice of two to three weeks' duration.

Kehr states that when biliary obstruction has been present for more than five weeks, operation carries an extremely high risk of hæmorrhage. He also refers, however, to a case of fatal hæmorrhage after jaundice of five days' duration.

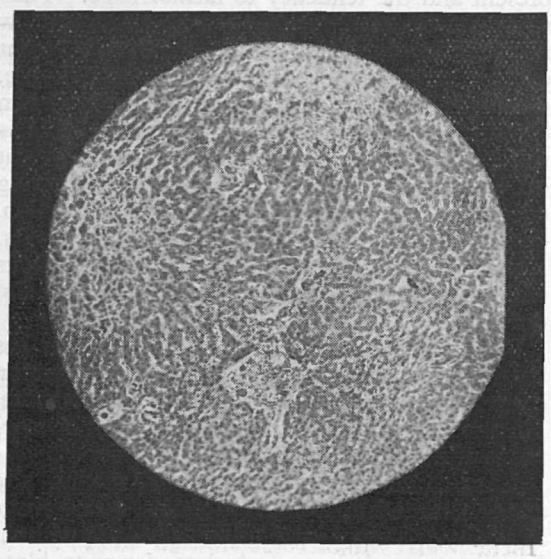
Long-continued intermittent obstruction also appears to tend towards a high hæmorrhage mortality. Thus a case of cholelithiasis without jaundice may show a marked tendency to bleed when there have been repeated attacks of obstruction.

A case described by Pallin is of interest for several reasons. A woman, aged 47 years, was operated on in 1918 for removal of gall-stones. During the following three years she suffered intermittent attacks of biliary obstruction. In 1922 she was again operated upon. Before operation her clotting time was definitely *shorter* than the control. Gall-bladder drainage was performed and she made good progress for seven days. Blood then began to trickle from the abdominal wound and from the gall-bladder drain. Her coagulation time was then found to be increased beyond the normal by 50 per cent. She became very ill and vomited blood, but after blood transfusion her bleeding stopped and she recovered.

It has already been pointed out that there is no relation between the depth of the jaundice and the hæmorrhagic tendency, either in jaundice due to obstruction or toxic hepatitis. Flint remarks " that it is not unusual to find a patient with a stone in the bile duct when there was no jaundice, react in a similar way as regards the tendency to bleed as a jaundiced patient." Liston and others have remarked on the occurrence of a hæmorrhagic tendency in cases with biliary fistulæ unassociated with jaundice.

When biliary obstruction is due to malignant disease the liability to hæmorrhage appears to be much greater. This has been emphasised by

Mayo-Robson, Quenu and Arnsberger. This is probably due to the greater amount of liver damage which occurs when the obstruction is produced in a biliary system which has not been the subject



Acute Pancreatitis
Plummer's Case (Dr. Hurst).

of previous chronic inflammation. A case of biliary obstruction due to acute pancreatitis recently reported from Guy's Hospital showed a marked hæmorrhagic tendency. This patient was not submitted to operation, but at post-mortem much blood was found in the gut and stomach. The liver showed marked and widespread necrosis. The lævulose tolerance test had shown definite hepatic deficiency.

The hæmorrhagic tendency may manifest itself first after the relief of obstruction. Thus there may be no excessive hæmorrhage at operation, yet, as in Pallin's case, severe or even fatal hæmorrhage supervene after an interval of as long as seven days. Similar cases are reported by Pendl, Petrén and Wagensteen.

Biliary obstruction produces not only degeneration of the liver parenchyma, but also retardation of the portal blood flow, leading to shunting through the newly formed collaterals. It has been observed that a marked toxic state may develop after the relief of obstruction. For these reasons, Reid and Crile have suggested that a gradual decompression of the biliary system should be performed in severe cases. It seems that the improved circulation of blood through the liver, following relief of obstruction, either leads to a temporary increase in the liver deficiency due to œdema or some such cause, or else that there is a sudden release into the general circulation of toxic substances resulting from the previous damage. These clinical observations call to mind again the expirements of obstruction to the portal and hepatic veins, and the possibility of an anticoagulant.

THE DETECTION OF POTENTIAL BLEEDERS

The fact that a marked hæmorrhagic tendency may be present even when the coagulation time is normal has already been stressed. A prolongation of the clotting time, however, is of very serious significance. According to McVicars and Fitts, to operate when the clotting time is prolonged is to court disaster. The bleeding time also appears to be of little use in these conditions. Various workers claim that the sedimentation rate gives the best indication of a hæmorrhagic tendency in obstructive jaundice, and in cholecystitis without jaundice, an increase in the sedimentation rate being indicative of a tendency to bleed. Liston claims to have gained considerable success by this procedure. The presence of fever and other causes of an increased sedimentation rate must be considered in applying this test. It is well, however, that inflammation and fever result in an increased sedimentation rate, so that any error due to this cause will tend towards more careful treatment.

TREATMENT

Cases with obstructive lesions to the ducts form the vast majority of the cases with which a surgeon has to deal, and it is the prevention of hæmorrhage in this condition which will chiefly occupy our attention in the next part of this paper. Evaluation of the various methods for the prevention of bleeding in jaundice is rendered more difficult because of the fact which is not fully realised by many workers on the subject, that a lengthened clotting time does not necessarily accompany a hæmorrhagic tendency. There is no definite method for the evaluation of the hæmorrhagic tendency. The estimation of the bleeding time is fraught with experimental errors. It is possible that a given method of treatment may produce good effects independently of any alteration in clotting time, particularly in those with normal times. It seems, however, that a return of coagulation time to normal is some evidence of a beneficial effect.

The efficiency of any treatment must be judged on its clinical results. In the present consideration one must remember that, apart from the variations in therapy, there are yet three very variable factors

—the patient, the surgeon and the house surgeon. So that one surgeon's operative mortality figures may vary from those of another, because he operates on fewer of a certain class of case, for instance, those with malignant strictures, or perhaps his technique may be better. The house surgeon may, while prescribing one drug, also alter the patient's diet, or in other ways vary the general treatment.

Calcium.—Though Mayo-Robson in this country in 1894 advised the treatment of bleeding in jaundice by calcium, it was Walters of the Mayo Clinic who popularised its use. Walters injects 5 c.c. of a 10 per cent. solution of calcium chloride intravenously on the three days preceding operation. Walters claims by this method to have reduced the operative mortality due to hæmorrhage in the Mayo Clinic to a marked extent. That this reduction in mortality is due to the calcium therapy is very doubtful, however. Improved operative technique and the use of other pre-operative treatment such as high fluid diet and glucose must be considered.

Though there are several statistical investigations claiming to show the efficiency of calcium therapy, they must be accepted cautiously, and it is noted that other statistical investigations have failed to show any corresponding improvement. Van den Beuren, for instance, found that there had been no improvement in the death rate following gall-bladder operations with obstructions in the larger New York hospitals in the last ten years. Before the introduction of Walters' calcium therapy the death rate was 32 per cent., whereas in the years 1921-1930 the death rate was 33 per cent.

The routine injection of a chemical is a fairly fixed factor, and these findings suggest the importance of other factors than calcium therapy in Walters' figures.

Results described by numerous surgeons appear to show the ineffectuality of calcium therapy in many individual cases.

Liston records two cases of bleeding in jaundiced subjects uncontrolled by the injection of 15 c.c. of 10 per cent. calcium chloride intravenously, but controlled by blood transfusion. In a series of 23 cases receiving calcium injections, 15 bled excessively, varying in degree from oozing to fatal hæmorrhage. He concludes that calcium is of little value. This view is supported by many clinicians, including Flint, Ravdin, Jansen and others.

The most certain method of raising the blood calcium level is by the injection of parathyroid extracts, and favourable results have recently been claimed to be produced by this treatment in various hæmorrhagic tendencies.

Cantarow, Dodek and Gordon state that the clotting time was reduced in jaundiced patients by this means. They state that the favourable result of parathyroid injections was due largely to this shortening of the clotting time, aided by a diminished capillary permeability.

Zimmerman, however, was unable to confirm these results either in jaundiced patients or dogs. He could find no alteration in the clotting time or in the clinical picture following parathyroid injections.

As we have said, there is evidence that calcium therapy may be of use independently of its immediate action in the blood. Schloessmann believes that it acts indirectly by improving the liver condition.

Minot and Cutler have demonstrated its usefulness in severe liver necrosis produced by chloroform, carbon tetrachloride and arsphenamine. They have shown that these conditions result in circulation in the blood of large quantities of guanidine. Guanidine intoxication causes a perversion of glycogen metabolism, and the blood sugar is lowered and the blood lactic acid raised. This disorder is cured by calcium injections. Incidentally, Minot could find no indication that the calcium ion concentration was low in these conditions, and states that "experiments now in progress suggest that the calcium ion concentration is raised." The total calcium values they found to fall within the normal range.

It may be mentioned here that the recent work of Stewart and Percival suggests that calcium ions oppose blood coagulation and that a complex non-diffusible calcium compound is the important factor in coagulation. This it will be noticed is directly opposed to the commonly accepted view that calcium ions are essential to the inception of clotting.

The injection of guanidine into dogs results in various types of symptoms varying from twitchings to convulsions and coma. These are relieved by calcium injections. The progress of the actual liver necrosis does not appear to be markedly affected by calcium.

There may be marked liver necrosis with biliary obstruction, and it is possible that calcium therapy may benefit such patients.

The effects produced in an animal by the injection of calcium compound are fundamentally different from those produced by parathyroid, though both may result in a rise in blood calcium.

The osteoporosis often seen in chronic biliary obstruction is evidence of depletion of the calcium stores. It would appear to be wrong then, particularly if we do not believe that the object of calcium therapy is to correct a supposed deficiency

in blood calcium, to administer parathyroid extract, since parathyroid produces its effect by further depleting the calcium stores.

It has been shown that a marked rise in blood calcium may be obtained by the oral administration of calcium gluconate. Lieberman advises the use of 10 grams (160 grains) after meals. Such a dose may, however, cause gastro-intestinal upsets, and should these results follow this dose it must be reduced, as the presence of such conditions apparently prevents the rise in blood calcium. Calcium therapy, if practised by this method, may be used for several days preceding operation, obviating the discomfort and danger inherent upon intravenous calcium chloride injections. When there is persistent vomiting or diarrhœa, however, the intravenous method must be used. Calcium gluconate has considerable advantages over the chloride, in that more concentrated solutions may be injected with safety, and that its presence in the tissues does not result in tissue necrosis, as does calcium chloride when injected around a vein.

DIET

Proteins.—Kugelmass, Foster, Whipple, Stanley-Brown and others have shown that the fibrinogen content of the blood of both men and animals may be markedly raised by feeding diets rich in animal protein. Conversely, the blood fibrinogen may be decreased in dogs to one-half its former value by withholding animal protein. The association of a low blood fibrinogen value with a tendency to excessive hæmorrhage and the possibility of its importance in obstructive jaundice has already been discussed.

Nechells and Mills have shown that high protein feeding to men and dogs results in a shortening of the coagulation time. They were unable to show any such effect using diets containing high proportions of carbohydrates and fats. They have also shown that high protein and glycocol feeding results in an increased tendency for the blood platelets to agglutinate.

It is interesting to observe that animal proteins are frequently withheld from patients suffering from cholecystitis and jaundice, and that the diets of patients preparatory to operation approximate closely to those prescribed by Kugelmass for patients with a tendency to thrombosis. It appears then that the unusual diets of jaundiced patients may actually be a factor tending towards a hæmorrhagic tendency.

The question therefore arises : can a jaundiced person tolerate proteins well ? The importance of the liver in the metabolism of proteins has been much stressed in the past. Yet the liver plays an important part in the metabolism of all classes of food substances, and man cannot live by carbohydrates alone. The French school, including Brulé, actually advise high protein diets to jaundiced subjects. Hampson does not advise any reduction in the proteins given to jaundiced subjects, which he says are usually tolerated well if given with adequate quantities of carbohyrdates, and limits only the fats.

A further question arises, however : can a jaundiced patient with a damaged liver respond to high protein feeding by a rise in fibrinogen ? There appears to be no direct evidence on this point.

Glucose.—It must not be inferred from the above remarks that carbohydrates are contra-indicated in faulty liver conditions. On the contrary, the importance of supplying large quantities of readily available carbohydrates to patients with liver damage has been demonstrated repeatedly. Davis, Hall and Whipple have shown that the liver regenerates much more rapidly after the relief of obstruction if the animal is given large quantities of carbohydrates. Ravdin believes that the administration of glucose causes an improvement even when the obstruction is still present.

Ravdin, Riegel and Morrison, in an interesting paper comparing the values of calcium and glucose as agents for decreasing the clotting time in jaundice, show that the clotting time of the blood is more readily reduced in normal dogs and in those with jaundice due to bile-duct ligature by intravenous glucose injections than by calcium therapy. Glucose has no such effect after hepatectomy. A reduction in the clotting time occurs very soon after glucose injections and maximal in about two hours.

Ravdin advises the use of dilute glucose solutions in normal saline or isotonic glucose in water. The use of concentrated glucose solutions is disadvised by Ravdin, as they " lead to dehydration." Mantner has shown that during glycogen storage the water content of the liver is increased, and that " dehydration " prevents glycogen storage.

When concentrated solutions of glucose are injected rapidly much is lost by way of the kidneys.

Large quantities of glucose may be taken without discomfort in glucose lemonade. A glass of lemonade made from one fresh lemon and *saturated* with powdered glucose is a very pleasant drink. In the writer's personal experience six or eight glasses of this drink may be taken in a day. It may also be emphasised here that the use of glucose is equally important after operation in aiding the liver regeneration, and in combating the so-called " liver-shock " which may develop after release of obstruction.

Insulin.—There is much diversity of opinion as to the necessity for the use of insulin in conjunction with high glucose feeding, and glucose injections in obstructive and toxic jaundice. Its use has been opposed by Bissinger, Barbour and others. Much of the work opposing the use of insulin has, however, been done on animals. The applicability of such work to the present problem must be considered carefully. It is not unusual to find evidence of pancreatic disease in obstructive jaundice, particularly when the obstruction is due to stone. It seems that small doses of insulin, such as 5 units night and morning, are of help.

TRANSFUSION

There is evidence suggesting that the liver in obstructive jaundice, and still more in toxic jaundice, may be incapable of responding in the usual way to stimuli producing in the normal a rise in fibrinogen. If this be so we have only one way by which we can raise the blood fibrinogen, and that is by transfusion.

Transfusion of whole blood has been found by numerous workers to produce remarkably good results in bleeding associated with obstructive jaundice (Liston, Crile, Petrén, Flint, Ravdin and Glenn, and others). It is difficult to obtain convincing evidence of the independent usefulness of this procedure, as many cases in the literature received a blood transfusion as the last resort, after intravenous calcium therapy, horse-serum, coagulum ciba, and other usual hæmostatics had failed.

The most usual method of transfusion now practised involves the use of sodium citrate as an anticoagulant. Sodium citrate on injection into the blood stream shortens the clotting time, and has been recommended for the treatment of hæmorrhage. It might, therefore, be argued that the chief effect of blood transfusion was due to the sodium citrate. This is not the case, however, as it has been shown that apparently equally favourable results are obtained using the direct methods of transfusion.

It is difficult to understand how the transfusion acts, for our knowledge of the variations in the blood fibrinogen values in disease is very limited. It will be noticed that the transfusion of one pint of blood to an adult will not raise the blood fibrinogen level very greatly. Thus, if we take as an example a case of toxic jaundice quoted by Weiner and Weiner in which the blood fibrinogen level was one-third of the lowest normal and call this fibrinogen value 33 per cent., the addition to the blood of such a person, taking the blood volume as ten pints, of one pint of blood with a fibrinogen value of 100 per cent. would result in a rise of 6 per cent. to a value of 39 per cent.

It may be that the transfused blood may act to some extent as a foreign protein and stimulate a further formation of fibrinogen. It is likely, however, that transfusion acts in some way which we do not understand.

It is of extreme importance that the blood should be accurately grouped, and "cross grouping" becomes more than ever an essential precaution. Pallin records a case of severe bleeding after an operation for gall stones to which, "on account of an unwarrantable mistake," 430 c.c. of incompatible citrated blood were transfused. This resulted in an increase in the hæmorrhage, and blood trickled from the needle punctures for several days. A further transfusion of a compatible blood resulted in an immediate cessation of all hæmorrhage, and a marked improvement in the patient's condition.

Transfusion should also be performed after operation should the patient show a tendency to bleed. Even when bleeding is actually taking place transfusion may cause an immediate cessation as in Pallin's case.

THE OPERATION

Chloroform should never be given to patients with liver damage, and this includes all cases of obstructive jaundice. Nitrous oxide and oxygen induction followed by ether may be used. Crile advises nitrous oxide combined with local anæsthesia. Morphia is contra-indicated in liver damage, not only because it is liable to produce untoward effects, but also because it causes depletion of the liver glycogen (Ravdin). Ravdin believes the barbiturates to be the best hypnotics for use in such cases.

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Stitch

By E. T. C.

THE sensation known as stitch appears to be a fairly common experience. Extensive inquiry reveals but few who fail to declare some first-hand knowledge of the matter, while in many sports liability to severe discomfort of this type is often a great handicap. Although a great deal is known regarding the conditions likely to produce stitch, and many methods are advocated with considerable success for its prevention in athletics, the rational basis of these procedures and the probable origin of the pain itself have attracted relatively little attention.

The association of stitch with the early stages of sudden and severe muscular exercise is well established. Frequent among subsidiary factors which predispose to onset of the discomfort are the recent taking of food and a lack of physical condition or training in the individual concerned. But not every form of muscular exercise will provoke stitch, even in the untrained, and rowing men, whose effort may at times assume a severity unequalled in almost any other sport, are notoriously free from trouble of this kind, while in long-distance and cross-country running the incidence is quite disproportionately general. This would suggest that the erect posture and a jogging up and down motion are definitely concerned. In this connection H. M. Abrahams, of Cambridge, often stated that runners with a smooth action were noticeably less liable to stitch than those having a clumsier style, while even the best men were likely to have trouble when moving on hard road surface or over very broken country.

The typical stitch pain may be difficult to localise accurately, but is usually experienced somewhere along the costal margin on one or other side. Occasionally the reference is closer to the iliac crests, but, in general, the surface area concerned is supplied by one or more of the last four dorsal nerves. In quality the pain may best be compared with a muscular cramp or an intestinal colic, though it lacks the rhythmic features of the latter. Stitch is quickly relieved by rest and, like many of the pains arising in muscle, considerably ameliorated by pressure.

Sensations of a similar quality and situation are frequently experienced quite apart from food and exercise, and it is to be remarked that in such cases the erect posture together with some sort of irregular jolting motion appear to be the precipitating factors. Thus "riding stitch" is well known, and more so in connection with the ungainly camel than with the smoothly-moving horse, though on the back of either animal those unused to the movement may be seized with what is undoubtedly a true stitch. Riding pillion on a

motor cycle over rough country roads might certainly be expected to have the same effect, and quite recently a badly-laid section of the Sutton by-pass had stitch-producing properties that were well known to the owners of many not too well upholstered automobiles.

Professional athletes have always been interested in the prevention of stitch, and, in general, the maintenance of good tone in the abdominal musculature by means of rigorous training appears to offer the best prospect of freedom from trouble of this kind. At many public schools cross-country runners are taught to take the first half-mile, especially over rough country, with the arms held well into the sides, thus providing extra support for the oblique and transverse musculature of the abdomen. For the immediate relief of a severe stitch, bending double and manual pressure on the upper abdomen are the instinctive, as well as by far the most effective, measures. The subject of camel-stitch often derives benefit from the wearing of a tight belt or binder, and this device is sometimes used by the racing jockey, whose crouching posture and excellent riding ability do not always protect him in a steeplechase or over very rough going.

A rational explanation of the stitch pain can possibly be based on the evidence accumulated from such everyday observation. Spasm of the diaphragm on one or other side is frequently said to be the source of the discomfort, yet the subject of a severe unilateral stitch provoked by exercise betrays absolutely no asymmetry of chest movement even with marked hyperpnœa. Last year a series of fluoroscopic observations made on four Guy's men who voluntarily induced the stitch pain by running after a heavy meal failed to reveal any defect of diaphragmatic movement during the entire course of their discomfort. Another suggestion made from time to time is that the pain derives from a state of tension existent in the muscular capsule of the spleen. Experimental observations have shown that an enlargement of this organ accompanies the gastric stage of digestion under physiological conditions, while Barcroft has demonstrated quite convincingly the marked contraction following a moderate amount of exercise. Severe effort shortly after a heavy meal might reasonably be expected to set up conflicting forces in the splenic capsule. If, however, the spleen and its capsule are entirely responsible for stitch, a preponderance of left-sided discomfort is to be expected. A large number of observations made at Guy's during the past two or three years show exactly the opposite to be the case. The pain is far more often right- than left-sided. Furthermore, the undoubted stitch-like nature of the sensations caused by repeated sharp joltings in the erect posture, and which can be produced without active exercise, seems to require some other explanation.

The upright posture assumed by man has delegated the support of his heaviest viscera to a set of highly specialised ligamentary structures, the suspension in particular of stomach, spleen and liver presenting peculiar features quite absent in the pronograde animal. The musculature of the abdominal wall, however, still plays a highly important part in the maintenance of functional and anatomical efficiency within the abdomen, as the varied and distressing symptoms of the viscer-optotic individual so frequently testify. It may be put forward as a tentative suggestion that the situations in which stitch usually appears are strikingly those in which the abdominal wall is less able to provide adequate support, with the result that vertical strains on ligamentary arrangements are much intensified. Thus in the early stages of exercise, and especially in the untrained, there is a marked hyperpnœa and even dyspnœa with maximum excursion of the respiratory musculature in both thorax and abdomen. This involves at one phase during each gasping breath a complete relaxation of the muscles maintaining an intra-abdominal pressure and therefore assisting in the support of heavy viscera. If a violent jolting movement coincides repeatedly with this relaxation the result must be an intermittent tugging strain on the coronary and other ligaments supporting stomach, liver, spleen and bowel. When " second wind " ensues and the respiratory movements become better co-ordinated and less extensive, this effect tends to disappear. During abdominal operation performed under local anæsthesia, it is known that pulling on the mesentery often produces boring pain of the stitch type, presumably by irritation of peritoneal nerve endings which respond to tension more than to any other physical stimulus. A possible activity of this kind of stimulus in the production of stitch becomes apparent, and leads to the suggestion that the disorder might be classed as an acute physiological visceroptosis to which man is especially liable in virtue of his erect posture.

Guy's Hospital Gazette

The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

A Glimpse of the East

By a Guy's Nurse

TUCKED away on the outskirts of Peshawar, within sight of the city walls, is a Mission Hospital for Afghans, and at one time it was the only place available for the citizens of Peshawar. The hospital is built on the site of an old Moghul garden, and still contains the ruins of two old towers. Climbing up the rugged stone staircase of the Middle Tower one comes unexpectedly into a delightful little chapel, fitted up with relics from all over India—brass lamps from Benares, reading-desk and carvings from Kashmir, a brass candle-stick of unknown age from the Armenian Church in Kabul. It is in very truth a quiet and restful House of Prayer.

From the roof one gets a perfect view of the hills inside which Peshawar lies, Cherat, Malakand, Khyber and Kohat Hills, and the snow-clad mountains beyond. It is from these mountain villages that most of the patients come. Passing through the courtyard, a fountain and some palms relieve the bareness of the red brick walls, and on the verandah sits an old Mullah, very picturesque with his weather-beaten face, eagle eyes and white beard, in puggaree and flowing robe like the Patriarchs. In front of him a row of kneeling figures, bowing and posturising as they say their evening prayers, the murmur of their voices mingling with the music of the fountain as the sun sets in the west. Round this square most of the wards are situated.

The patients lie on webbing beds, with just a thin mattress and a red blanket to cover them, and, in spite of the marked evidence of suffering on their faces, they look comfortable and at rest. Every patient has a smile for us as we go round. It would be an impossible task to make anyone who has only nursed in England visualise a scene in one of these wards, everything as bare and scrupulously clean as possible—and the patients in their hospital clothes of grey and red look vastly different to the figures who present themselves for treatment in their filthy rags, and one need only see the hovels from which they come to realise how much they appreciate the comforts of a hospital.

The most common cause of sickness among these people is cataract and stone in the bladder; as many as 12-20 operations are done per day in the busy season, when the Passes are open and the people come in from miles round. It is a marvellous thing for a patient who has been blind for years to get his sight back. The cases of stone are even more trying, as it attacks all ages—children of two years and under. These are mostly treated by crushing of the stone, and only a few cases have to have a super-pelvic operation. Women only come in small numbers, their lives not being nearly so important as the menfolk!

A woman was brought in with a contracted pelvis, having been three days in labour. The husband would not give permission for a Cæsarean to be done, as he was afraid of what the neighbours would say. After hours of talking and persuading, it was pointed out to him that much more would be said to him by God in the next world if he let his wife die than anything the neighbours might say in this! He gave his sanction reluctantly, and, by a miracle, the woman lived and was delivered of a living male child. The gratitude and re-joicing were indescribable, and the whole family became Christians.

A patient is charged 3 rupees on admission; there is a subtle reason for this. If he was given free treatment, as soon as he felt a little better he would get up and go home; as long as he has paid he will stay till he is turned out!

It is impossible for people in England to realise what nursing amongst Indians means. Your greatest enemies are ignorance and superstition; you are nearly always short of staff and always short of money. But surely it is a work worth doing to those nurses and medical men who have the pluck to tackle it.

A Case of Sub-Arachnoid Hæmorrhage

By H. W. Lewis-Phillips, Esq., M.R.C.S., L.R.C.P.

Boy aged 13 years.

Previous history.—Nothing of note.

Family history.—Mother died of post-partum hæmorrhage and eclampsia about 12 years ago.

History of present disease.—On March 10th, 1932, the boy was climbing a rope in the gymnasium at school. He came down to floor and then collapsed after reaching floor. No history of an actual fall. He was sent home by car (about five miles) and was seen about four hours later.

Condition on examination.—Child was "muddled" mentally; answered questions fairly normally. Remembered nothing about collapsing at school or about being brought home.

Examination.—Pulse 58. Temperature 98°. Healthy-looking child.

Heart.—Second sound at apex accentuated. Nothing else.

Chest.—Nothing.

C.N.S.—Eyes, normal; jerks, normal. Slight stiffness of neck.

Ophthalmoscopic examination.—No Kernig's. Plantar reflexes flexor.

Ear examination.—Drums normal.

Abdomen.—Nothing. Constipated.

Urine.—Phosphates only.

Child was kept in bed and put on an alkaline mixture. Much better in five days, and was allowed to get up, but ordered to keep very quiet.

24/3/32.—Child was sitting on a chair by fire; suddenly went "limp and unconscious." Seen an hour later. Was lying on a couch half propped up. Restless; picking at clothes. Was again mentally muddled. Resented examination, but answered after a long pause between question and answer. Grip and power in legs were poor. Temperature 98°. Pulse 52.

25/3/32.—Eyes appeared "stary." Very drowsy. Slight internal squint of right eye. Power and grip good. Jerks present and equal.

Kernig.—No pain on extending leg with thigh flexed, but could not extend legs to normal extension.

Heart.—There was an apical systolic murmur traceable into axilla.

Urine.—Thick white deposit. Sugar + with Fehling's solution. Acetone + (slight). Rothera test. Fe chloride test negative. Specific gravity 1040.

Pain in neck and rigidity more marked, also headache. Decided to call in a specialist with view to advisability of doing a lumbar puncture. Lumbar puncture done. Cerebro-spinal fluid under pressure, and blood-tinged. Three specimens showed blood to be of same tinge in each specimen, suggesting sub-arachnoid hæmorrhage. Blood taken for a blood-sugar test.

Urine.—No sugar. Rothera +. Specific gravity 1020.

Blood-sugar was normal. Examination of cerebro-spinal fluid confirmed diagnosis of sub-arachnoid hæmorrhage. No evidence of tuberculous meningitis.

27/3/32.—Headache and stiff neck better. Seen again in evening, neck very stiff and painful and head turned to right side. Bowels not opened. Calomel gr. ½ half-hourly till gr. ii given. Pulse 100. Temperature 101.6°.

28/3/32.—Temperature 98°. Pulse 100. Saline aperient, no result.

Evening.—Temperature 100°. Pulse 108. Occasional pains in neck. Occasional pain in both legs.

29/3/32.—Temperature 100°. Pulse 100. Stiffness of neck much less. Slight headache.

10 *p.m.*—Another attack. Seen within ¼ hour. Unconscious.

Respiration.—About 10 per minute, with period of apnœa. Corneal reflex present, but sluggish. Pupils semi-dilated. Lumbar puncture showed bright blood not under great pressure. Child became rigid, arched back, extension of arms and legs, head retracted.

Died about 12 midnight.

Nursing News

WE are pleased to report a very satisfactory result to the Nurses' Entertainment given on the 6th, 7th and 8th April :—

	£	s.	d.
Sale of tickets and door money	62	5	0
Refreshments and programmes (by the Preliminary Training School)	15	0	0
	£77	5	0

With the exception of £1 5*s.*, the expenses were covered by a small fund raised previously. £76 has been paid into the Cosmo Bonsor Memorial Scholarship Fund.

It was a great pleasure to give the entertainment, and we feel that we have been amply repaid for our hard work. The effort was only possible through the help and co-operation of the entire hospital. We would specially like to thank the Dean and Professor Pembrey, the Superintendent, and the Works Department. F. T.

The following nurses were successful in passing the Final State Examination in February last. Their names have been added to the State Register :—

Brown, M.	Keeping, F. S.
Bookham, M.	Kirby, H. C.
Colledge, C.	Marriott, M.
Dawson, A. F.	Morris, P. M.
Ellement, D.	Prime, J.
Heidenstam, R. de	Robinson, R. G.
Harris, M.	Sands, G.
Jenkins, G.	Winstanley, —

Affiliated training with the Cancer Hospital, Fulham Road :—

Bankhead, M.	Hayes, D.
Harvey, A.	Henschel, H. J.

The Physical Society

A MEETING of the Physical Society was held in the College Smoking Room on Thursday, April 21st. Mr. James, the Chairman, had collected an interesting series of cases, and the discussions which ensued were lively and, for the most part, intelligent. We were glad to see Dr. Fawcett present, and we hope that there will be more occasions in the future when we shall have the pleasure of hearing his opinions.

Mr. GILCHRIST demonstrated the case of a young man of 22 who had been pale for two years, and who now complained of pain in the chest and breathlessness on exertion. On examination there was a smooth tongue, a systolic murmur at the apex, and the blood count showed Hb. 20 per cent., reds 973,000, whites 2,000, and colour index 1. A test meal showed complete achlorhydria.

Mr. Silverstone asked if any immature red cells had been found, as this was an important point in the differential diagnosis of aplastic and pernicious anæmia. Mr. Bruce-Pearson thought that the high colour index was in favour of pernicious anæmia. Mr. Gilchrist, however, summed up in favour of aplastic anæmia.

Mr. GRACE described the case of a man, aged 35, who for two years had suffered from vague abdominal discomfort, consisting of a sense of fullness and pain after meals. This had been diagnosed as "gastritis," and relieved by bismuth and magnesia. During the last eight weeks he had been subject to severe attacks of vomiting, which occurred about once in ten days and lasted two to three days. These attacks were quickly terminated by the passage of a stomach tube, and the syphoning-off of large quantities of bile, etc. Eighteen months ago he had noticed a lump in his abdomen, which, however, his doctor regarded lightly.

Examination of the abdomen revealed a large, hard, fixed and irregular mass, which appeared to arise in the region of the bodies of the lumbar vertibræ. The tumour was roughly about the size of a grape-fruit, and was nobbly, suggesting enlarged glands. On palpation, a transmitted impulse from the abdominal aorta was easily felt. The ensuing discussion ranged around the diagnosis of this tumour.

Mr. Silverstone was the first to suggest that the gastric symptoms were obviously mechanical in origin, being produced by the pressure of this lump against some part of the intestine. He diagnosed lymphosarcoma. Mr. McArdle suggested retroperitoneal lipoma, with probably sarcomatous tendencies. Mr. Rosenberg, in a masterly description of the anatomy of the posterior abdominal wall, discovered the pancreas, and added the diagnosis of pancreatic calculus. Mr. James referred to an apparent fluctuation in size of the tumour, suggesting a vascular origin, and he thought that it might be an angioma or aneurysm. Mr. Simpson-Smith pointed out that the long history was against the mass being of a malignant nature, and he diagnosed abdominal Hodgkin's disease and advised laparotomy.

Dr. Fawcett remarked that, although clinical examination suggested that the mass was composed of glands, it was impossible to diagnose the pathology without laparotomy. He thought, however, that the long history and the fixity of the mass pointed to the pathology being non-malignant, probably of a chronic granulamatous nature.

In summing up, Mr. Grace said that the patient had so far refused to consent to an operation, but he thought that the increasing severity of the symptoms, combined with auto-suggestion, would eventually persuade him to change his mind.

Mr. SPIERMAN told the story of a labourer, aged 69, who complained of sore throat and had a hard, fixed lump in his neck, which was obviously composed of carcinomatous glands. An exhaustive examination of his mouth, pharynx, larynx and œsophagus had failed to reveal the primary focus, although Mr. Rosenberg thought that he had solved the problem when he managed to persuade himself (but not the meeting) that an obvious inflammatory ulcer on the fauces was malignant. The discussion closed when Mr. James remarked that, in a similar case which he had seen, autopsy revealed the primary focus in the Eustachian tube.

Mr. BLACKLOCK demonstrated the case of a man, aged 28, who for 14 days had complained of a throbbing pain in the second toe of his left foot. When the pain was severe the toe became discoloured and black, only to regain its normal appearance when the pain disappeared. The circulation in the other toes of the foot was satisfactory, and there was a good pulsation in the dorsalis pedis artery.

Mr. Batchelor remarked that the toe was not in any way gangrenous, and the circulatory disturbance appeared to be of a spasmodic vasomotor nature, resembling Raymond's disease in the fingers. Mr. Bruce-Pearson suggested that the

toe was bruised and that the patient wanted a few days' rest in hospital.

Mr. SPINK showed the case of a lady, aged 35, who for five months had complained of a sense of fullness and epigastric pain after food, and vomiting. Her appetite was poor, she had lost much weight, and she was pale and obviously anæmic. A blood count showed hæmoglobin 35 per cent., red 2,000,000, and colour index .95. There were megalocytes present. Blood had been found in the stools, but a test meal showed complete achlorhydria and no blood. A heated discussion arose over the two possible diagnoses—carcinoma of the stomach or pernicious anæmia. Mr. Bruce-Pearson thought that the absence of the typical lemon-yellow colour, the low colour index, and the blood in the stools were points in favour of carcinoma. He was supported by Mr. James, who advised laparotomy.

Mr. Rosenberg, however, was confident that the case was one of pernicious anæmia, and he was strongly opposed to laparotomy, unless the carcinoma, if present, showed itself by obvious symptoms. Following upon this heresy, we were glad to be assured by the house physician in charge of the case that a laparotomy would be performed at an early date.

Mr. SCHOLFIELD described the case of a boy, aged six, who had enlarged glands in the neck and axillæ and a three-weeks' history of lassitude, headache, and occasional epigastric pain and vomiting. He asked for a diagnosis.

Mr. Bruce-Pearson said that the diagnosis lay between infective mononucleosis and tuberculosis, and remarked that a blood count and X-ray of the chest would be necessary investigations before coming to a decision. Mr. Scholfield replied that the blood count was normal, but the X-ray of the chest showed miliary tuberculosis. He also described the Mantoux test which he himself had performed on the patient, with a positive result. Finally, a gland had been excised for section, and tuberculous granulation tissue found. The diagnosis was therefore confirmed.

Mr. MCARDLE demonstrated a spleen showing Hodgkin's disease, and a lung with miliary tuberculosis, both specimens having been obtained from the same case. The not-infrequent association of the two pathologies was remarked on by several members, including Dr. Fawcett, who pointed out that the association was usually a terminal event. Mr. McArdle discussed the relations of tuberculosis and Hodgkin's disease and reviewed the latest literature on the subject.

Reviews

Fertility and Sterility in Marriage. By Th. H. VAN DE VELDE, M.D.; translated by F. W. Stella Browne. Published by Messrs. W. Heinemann, Ltd. *Price*, 25*s*.

THIS is the third volume of Dr. Van de Velde's triology, of which "Ideal Marriage" and "Sex Hostility in Marriage" are the first two. This last volume deals essentially with conception and contraception from almost every conceivable aspect, and is written in the same clear and pleasant vein which characterised the two previous volumes. The author has collected and collated a vast amount of material from monographs and periodicals published throughout the world. The subject matter of the book is interspersed with two series of aphorisms, which one feels have been well and carefully picked to lend weight to the preceding chapters.

The ethical, theological, racial, national and international aspects of family limitation are discussed with a delicacy which it is pleasing to find in a book dealing with such a controversial subject, and one can have no doubt about the author's earnest desire to place the essentials of all the available knowledge before the reader who wishes to obtain a comprehensive and unbiassed outlook on the matter. The views expressed on the causes of sterility in women and the methods of treatment are in many cases both novel and interesting, and open up new lines of thought in directions with which the gynæcological text-books do not deal.

The chapters on contraception and contraceptive methods comprise nearly a third of the book, and each contraceptive method is examined and estimated in detail, and one feels that this particular section will be of most use to the general practitioner, as the matter is one on which little is taught in the ordinary medical curriculum, and yet is one in which the doctor is the person from whom advice is so frequently sought by the laity.

A series of plates showing anatomical considerations stressed by the author, as well as descriptive plates of various appliances, is included in the book, together with a full bibliography. The sale of the book is limited to members of the medical profession and representatives of scientific education and research, but may be obtained by others on the written recommendation of a doctor.

Ultra-Violet Therapy. By AUSTIN FURNISS. L.R.C.P., D.P.H. Published by Messrs. William Heinemann, Ltd. *Price* 12*s*. 6*d*.

THIS book forms a complete review of modern actinotherapy, in which the author has carefully collected together the results, experiences and opinion of many workers engaged in this field.

The history and development of light therapy are dealt with in the earlier pages, and this is followed by several chapters devoted to the basic principles and physical properties of radiation. These chapters, together with the somewhat lengthy description of the various types of apparatus, may be omitted by those only interested in the clinical side of the question.

The remainder of the book deals with the different diseases to which ultra-violet therapy may be applied, and the author is careful to point out that in most cases it is not to be regarded as specific, but rather as a powerful means of raising the general resistance of the organism and correcting metabolic disorders. Many conditions in which local treatment is used are dealt with in detail. Diseases of the ear, nose and throat, bone and joint disease, gynæcological and dental conditions are the most important of these, and those interested in dental work will find that particular section of great practical value. The importance of calcium metabolism is, perhaps, over-emphasised, but this is, no doubt, accounted for by the fact that each chapter was originally a separate paper.

It is a book which can be recommended not only to those already interested in ultra-violet therapy, but also to the general practitioner, who can no longer afford to remain without knowledge of this branch of physical therapeutics.

Morbid Histology. By ROBERT DONALDSON, M.A., M.D., Ch.B. (Edin.). Second Edition. Published by Messrs. William Heinemann, Ltd. *Price* 42*s*.

IN the second edition of this book the author has enlarged and revised his work out of all recognition. In the first edition the author expressed the opinion that the most valuable illustrations for the student were to be found in his slide-box, and he therefore purposely omitted them. In this issue, however, he has given way before the requests of many readers, and, whilst still holding his former opinion, he has inserted over 200 excellently reproduced drawings. This will undoubtedly make the book more attractive to students, although it seems unfortunate that no reference has been made to these illustrations in the text. In this way opportunities to clarify points in the text, or to simplify the teaching of the subject, have been missed.

New chapters on diseases of the bone marrow, the thyroid and suprarenal glands, and on the dystrophies of bone have been added. The style is exceptionally clear and concise, and the teaching orthodox and sound. The author's method of description, starting with the macroscopical and proceeding to the microscopical examination, is helpful. Short sections on parasitology and on histological stains and technique have been added, and should prove useful to the student.

For those studying practical histology the book should prove extremely valuable, although it is probable that the price will prohibit its general use. It should also prove admirable for the qualified man revising his work for a higher examination.

An Index of Prognosis and End Results of Treatment. By A. RENDLE SHORT and Various Authors. Fourth Edition. *Price* 42*s*.

THIS is not a book to be consumed page by page from cover to cover, but as a reference for the results of different diseases it is very valuable.

The articles are interesting to any qualified person, and especially so to the House Officer or young practitioner.

It is notoriously difficult to obtain from one's seniors accurate advice as to the results or length of prognosis, and this book fills, therefore, a real need. All the articles read are clear and authoritative, and especial stress may be put on those dealing with pulmonary tuberculosis, enlargement of the prostate, and with the end results of various fractures.

The book is well produced, and articles are easy to find and clearly printed. The articles are in alphabetical order, and there is also a very full supplementary index.

The book can be highly recommended, as different treatments are compared with one another.

Radium and Cancer. By H. S. SOUTTAR. Published by Messrs. John Bale, Sons & Danielsson, Ltd. (Pocket Monograph Series). *Price* 2*s*. 6*d*.

ONE of a new series of books which really can be slipped into the pocket without strain. Like others of the same series it tackles the subject in the simplest way and makes a difficult subject interesting to the student who has no previous knowledge of it. The mode of

action is explained and its value for different types of growth is assessed. The author appears enthusiastic for almost all types of growth, which would not agree with the opinion of many general surgeons.

This book can be recommended with confidence to the senior student or House Surgeon as a very useful guide in the management of a case, and the difficulties and dangers are emphasised in a special chapter.

Acute Otitis Media. By W. M. MOLLISON. Published by Messrs. John Bale, Sons & Danielsson, Ltd. (Pocket Monograph Series). *Price* 2*s.* 6*d.*

THIS is a very readable book, giving an easily assimilated introduction to the subject of middle-ear infection. A valuable chapter on acute mastoiditis is added at the end of the book.

The various stages in acute otitis media are well described and the appropriate treatment indicated.

It is an excellent investment for the ear, nose and throat dresser or for the practitioner who desires to tackle acute middle ear disease in a scientific fashion.

Criminal Abortion. By A. L. PARRY. Published by Messrs. John Bale, Sons & Danielsson, Ltd. *Price* 10*s.* 6*d.*

A COMPLETE account of the facts of illegal abortion, with details of the various methods adopted. The different drugs used are described and all are condemned, but the author is too prejudiced to admit that some drugs appear to produce the desired result, if certain patients can be believed.

Abortifacient advertisements are exposed, and the author states a clear case for further amendments to existing laws in order to prohibit the sale of these drugs.

The law of abortion is clearly explained, with a very clear account of recommendations of the course a doctor should adopt when called into such a case.

It is a valuable book for the practitioner's reference shelf and of general interest to the profession.

The Genesis of Cancer. By W. HAMPSON-HANDLEY Published by Messrs. Kegan, Paul, Trench, Trubner & Co., Ltd. *Price* 21*s.*

IN this interesting book the author endeavours to prove that local lymph stasis, due either to congenital malformation of the lymphatic vessels or to a chronic proliferative lymphangitis, is the earliest precursory factor in malignant disease, and, in his opinion, may therefore be spoken of as its cause.

The first chapter deals with the lymphatic anatomy of the skin and furnishes a clear and concise account of a subject with which the majority of us have but a hazy knowledge. The second chapter describes the changes produced in the lymphatics by chronic lymphangitis, and is followed by chapters in which the author shows that papilloma and carcinoma are the end results of lymphatic obstruction. These are profusely illustrated with excellent micro-photographs, which lend weight to the author's contentions. In succeeding chapters the author applies his theory to various types of cancer. The pathology of chronic mastitis and its relation to breast cancer is described, and he discusses malignant changes in congenital skin malformations, radiation and cancer, and occupational cancer.

The arguments are both original and interesting, and although at times we feel that the author is rather optimistic in some of his assumptions, this book nevertheless suggests new lines of thought in the search for the causation of cancer.

Essentials of Physiology. By BAINBRIDGE and MENZIES. Edited by H. HARTRIDGE. Seventh Edition. *Price* 14*s.*

THIS well-known book has been largely re-written in an endeavour to make it even more acceptable and useful to the student of physiology. The book has been subdivided into somewhat smaller chapters, and more space has been devoted to the basic principles, with the introduction of new chapters on the acid base balance and the salt balance of the body.

The respiratory system has been re-written, and the chapters on the central nervous system revised. Greater space has been allotted to the ductless glands and sex organs, and these important subjects have been brought fully up to date. This new edition will certainly add to the reputation of former volumes, and retain its well-deserved popularity with the student.

Text-book of Medicine. Edited by J. J. CONYBEARE, M.C., M.D., F.R.C.P. Second Edition. Published by Messrs. E. & S. Livingstone, Ltd., Edinburgh. *Price* 21*s.*

IN this second edition Dr. Conybeare has succeeded in both enlarging and revising his book, and also in reducing the price. The first volume, by reason of its conciseness and clear-

ness, soon gained a well-deserved popularity with students, and this new edition can only enhance its good reputation.

The number of pages has been increased from 976 to 1,004. In the Infectious Fevers section the work has been brought up to date by additional information on sero-prevention and sero-attenuation in measles, and the treatment of diphtheria by anti-toxin has been more fully discussed. Temperature charts of some of the common fevers have been added, and should prove useful.

The section on Tropical Diseases has been completely rewritten, and the articles on Pernicious Anæmia and Purpura rewritten in the light of recent work. The section on Diseases of the Digestive System has been slightly enlarged and that on Cardio-Vascular Diseases revised. The chapters on Renal Disease and Diseases of the Nervous System have likewise been subjected to careful scrutiny.

The book fulfils excellently the efforts of the editor to produce at a low price a book which gives a clear and concise account of medicine, without, however, being anything in the nature of a synopsis. The various sections are well written and easy to read, and the book can be confidently recommended to the student in his clinical period and to the general practitioner who wishes to revise his medicine or to sit for a higher examination.

Sport

Athletic Club

IT is to be hoped that the interest shown at the Annual General Meeting of this club will be maintained for the remainder of the season. The Hospital sports are to be held at Honor Oak Park on Saturday, 21st May, and teams will be chosen from those competing to represent the Hospital at the University of London sports on Saturday, 28th May, and at the Inter-Hospital sports on either 31st May and 1st June or on the 6th and 8th June.

With regard to the latter, Guy's have not been represented since 1929. Guy's having held the Shield for so long before this date, it has been a matter of regret to those who are interested in athletics to see such poor support during the last two years.

We have an abundance of new talent this year, and are hoping to recapture the Shield. This can only be done if support is forthcoming. We urge all new and old members to enter their names on the lists of events, which are posted in the colonnade.

Training facilities are offered by the Amateur Athletic Association at the Crystal Palace (see notice board), and the ground at Honor Oak Park will be ready in a few days.

Fencing

Guy's v. Polytechnic

ON March 19th, Guy's visited the Polytechnic, and, in the absence of three regular members of the team, were narrowly beaten by 14 defeats to 13.

In foil, Wright's dashing and unorthodox style won him two well-earned victories. Forbes, who was somewhat out of training, was not in his best form. Rosenberg fought a good deal better than his score would suggest, and was unfortunate in not winning at least one bout.

The epée was fast and interesting, and some good hits were scored. Lawrence exercised good judgment in timing his opponent's attacks, and Hodgkin, although he won only one fight, fenced in good style. Irish did not seem at ease with the forceful methods of his opponents.

With the sabre, however, Irish won all his fights, and has now been undefeated in the last three matches. Forbes won two bouts, but Wright was unexpectedly beaten in his best fight, thus winning only one.

Scores: Foil—Wright, 1 defeat; Forbes, 2 defeats; Rosenberg, 3 defeats. Epée—Lawrence, 1 defeat; Irish, 2 defeats; Hodgkin, 2 defeats. Sabre—Irish, 0 defeats; Forbes, 1 defeat; Wright, 2 defeats.

Guy's v. "Masks."

THE last match of the season, against the Masks, was fought at Guy's on April 16th. Although the visitors were not so strongly represented as usual, the Hospital's 18-9 win was a very creditable achievement.

Paterson was in good form, and lost only to "Baby" after a close and well-fought encounter. Morris was equally successful. Forbes was not so good in his first two fights, but improved considerably in the last.

At epée only one bout was lost, and that by Morris with great rapidity. His other two fights were deservedly won. Lawrence fought well, although luck was on his side. The patience of Paterson was a little trying to the spectators, but of its success, judged by results, there could be no question.

Irish just failed to maintain his recent unbeaten record with the sabre, but gave a good display. Morris was very good at close quarters, but too many of his attacks were obvious, and so ineffective. Wright fought better than he has of late, but was not nearly up to his best form.

Scores: Foil—Paterson, 2 wins; Morris, 2 wins; Forbes, 1 win. Epée—Paterson, 3 wins; Lawrence, 3 wins; Morris, 2 wins. Sabre—Irish, 2 wins; Morris, 2 wins; Wright, 1 win.

Association

Guy's v. Borough Market

THIS match was played at Honor Oak Park on Wednesday, April 6th. The Borough won the toss and elected to kick with the wind, which was blowing strongly straight down the pitch.

There were early thrills, for Woodiwis, the home centre, ran through the visitors' defence, but had his shot smothered by the goalkeeper, and later Marshall shot over the bar from close range.

The visitors, however, soon began to assert themselves, and proved to be a very clever side. It was only by good first-time tackling that prevented them scoring. After 25 minutes the Borough took the lead. They forced a corner, and from the kick one of their forwards headed a good goal.

Ten minutes later this was increased, the outside right getting in a fine, low shot that gave Stoneham no chance.

Before the Hospital had recovered from this blow, the Market added a third, when, owing to slowness on the part of the home backs, the ball was netted from close in. Half-time arrived with the score 3—0.

With the wind behind them, Guy's attacked strongly and the Borough defended desperately. Goals, however, would not come, the shooting on the whole being poor. Good efforts were made by Cantor, Sharpe and Henderson. Perseverance, however, was rewarded when, from a pass by Henderson, Woodiwis scored with a good shot. Greater efforts were now made by Guy's, the Borough rarely leaving their own half, but it was of no avail, and the visitors won a very enjoyable game by 3—1.

Winning number for Ball, 467.

Hospital Information, etc.

Pass List

SOCIETY OF APOTHECARIES OF LONDON.

PRIMARY EXAMINATION.

April, 1932.

Materia Medica and Pharmacy.

J. L. Bates

FINAL EXAMINATION.

March, 1932.

Medicine.

*J. M. Durr *A. Kobylivker

Forensic Medicine.

*A. Kobylivker E. J. Littledale

Midwifery.

W. Nicholls L. G. Yendoll

* Now qualified.

Papers by Guy's Men

N. Burgess. Some observations on autohæmotherapy. *Brit. Jour. Dermat. and Syph.*, 1932, xliv, 124.

J. Lewin. Acute Mastoiditis. *B.M.J.*, 1932, i, 699.

C. S. Morris. Special gum retractor. *Brit. Dent. Jour.*, 1932, liii (1), 519.

D. W. C. Northfield. Points in treatment of minor suppurative conditions. *Gen. Pract.*, 1932, viii, 87.

M. Shaw and A. Sorsby. Refraction in cases of congenital torticollis associated with hemiatrophy of the face. *Brit. Jour. Ophthalmol.*, April, 1932.

C. P. Symonds. Effects of injury upon the brain. *Lancet*, 1932, i, 820.

T. R. Trounce and A. H. Douthwaite. Streptococcal meningitis; recovery. *B.M.J.*, 1932, i, 752.

Marriages

LEES—YOUNGS.—At St. Saviour's, Eastbourne, on April 6th, 1932, Frank Arthur Lees, F.S.I., F.A.I., of 16, St. Catherine's Terrace, Hove, to Sylvia A. M. Youngs (Guy's, 1917-1920), of 75, Cavendish Place, Eastbourne.

NORTHFIELD—SLATER.—On April 16th, 1932, at St. Mary's Church, Hendon, Douglas William Claridge Northfield, M.S., F.R.C.S., to Eva Marjorie, elder daughter of the late Mr. P. M. and Mrs. Slater of Deganwy.

Deaths

FORBES.—On April 12th, 1932, at the Forest Hospital, Buckhurst Hill, Essex, Augustus Harold Forbes, L.D.S., R.C.S. (Eng.), aged 52.

HUGHES.—On March 7th, 1932, at Down House, Whitchurch, Tavistock, Robert Harry Hughes, M.A., M.B. (Cantab.), aged 86, last surviving son of the late Rev. Henry Hughes, of All Saints', Gordon Square, London.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL MEDICAL SCHOOL.

TIME TABLE. SUMMER TERM, 1932.

SUBJECTS FOR FINAL EXAMINATION.

Subject	Lecturer	Days and Times	Place	First Class or Lecture
Bacteriology	Professor Eyre	Lectures. Tues., Weds. and Thursdays at 12 noon Practical. Mons., Tues., Weds. Thurs., Fridays and Saturdays at 9.15 a.m.	Pathological Theatre Pathological Class Room	Tuesday, April 26th Monday, April 25th
Psychological Medicine	Dr. Gillespie	Lectures. Fridays at 9 a.m. Demonstrations. Wednesdays at 3.15 p.m.	Physiological Theatre Bexley Mental Hospital	Friday, May 6th Wednesday, May 4th
Forensic Medicine	Dr. Ryffel	Fridays at 4.30 p.m.	Class Room 3	Friday, May 6th
Operative Surgery	Mr. Hughes	Days and Times to be announced later	Operative Surgery Class Room	
Applied Anatomy	Professor Johnston	Wednesdays at 12 noon	Anatomy Demonstration Theatre	Wednesday, May 4th

ORGANIC CHEMISTRY, ANATOMY AND PHYSIOLOGY.

Subject	Days and Times	Place	First Class or Lecture
Organic Chemistry (2nd M.B. Part I.)	Lectures. Mon. 1.45 and Weds. 11.30 a.m. Practical. Mondays 2.45-5 p.m. Thursdays 10-1 p.m.	Chemistry Theatre Chemistry Laboratory	Wednesday, May 4th Thursday, May 5th
Anatomy	Elementary Lectures. Weds. 11 a.m. Fri. 9.30 a.m. Practical Anatomy. Daily from 9.30 a.m. to 5 p.m. Revision Classes. To be announced later Normal Histology. Tuesdays at 2 p.m.	Anatomical Theatre Dissecting Room Demonstration Theatre Histology Laboratory	Wednesday, May 4th. Tuesday, May 3rd To be announced later Tuesday, May 10th.
Physiology	Chemical Physiology. Tuesday 2-4 p.m. Experimental Physiology. Weds. 11-1 p.m. Physiological Histology. Fridays, 11-1 p.m. (Revision for M.B. Candidates) Clinical Physiology (All Students). Thurs. 12-1 p.m.	Chemical Physiological Laboratory Experimental Physiological Laboratory Experimental Physiological Laboratory Clinical Theatre	Tuesday, May 10th Wednesday, May 4th Friday, May 6th Thursday, May 5th
	Practical Revision Classes for candidates for Conjoint Examination. Tutorial Classes, Elementary. (Junior Medical Students.) Tutorial Classes for Candidates for 2nd M.B. Examination.	Days and times of classes will be announced later	

CHEMISTRY, PHYSICS AND BIOLOGY.

Course	Subject	Lectures	Place	Practical Classes	Place
Pre-Medical Conjoint	Inorganic Chemistry Organic Chemistry	Tues. & Thurs. 9.30 a.m. First Lecture, Thursday, May 5th Thurs. 2-3 & Fri. 12-1 p.m. First Lecture, Thurs., May 5th	Chemistry Theatre Chemistry Theatre	Thurs. 3-5 p.m. & Fri. 10-12 noon. First Class, Thurs., May 5th. When no Lecture, Practical Class 2-5 p.m., on Thurs.	Chemistry Laboratory
	Physics	Light & Sound. Tues. & Thurs. at 10.50 a.m. Heat. Tues. at 12 noon. First Lecture, Thurs. May 5th	Class Room IV.	Mons. 10-1 p.m. and 2-5 p.m. First Class, Mon. May 9th	Physics Laboratory
	Biology	Weds. 9.30 a.m., Thurs. 12 noon, Sats. 9.30 a.m. First Lecture, Wed., May 4th	Biology Laboratory	Tues. & Fridays 2-5 p.m. First Class, Fri. May 6th	Biology Laboratory
M.B. London	Inorganic Chemistry	Tues. & Thurs. 9.30 a.m. First Lecture, Thurs., May 5th	Chemistry Theatre	Mons. 10-1 p.m., Tues. 2-5 p.m. First Class, Tues., May 3rd	Chemistry Laboratory
	Physics	Light & Sound. Tues. & Thurs. 10.50 a.m. Heat. Tues. at 12 noon. First Lecture, Thurs., May 5th	Class Room IV.	Thurs. & Fridays 2-5 p.m. First Class, Thurs., May 5th	Physics Laboratory
	Biology	Weds. & Sats. at 9.30 a.m. Thurs. at 12 noon. First Lecture, Wed., May 4th	Physiology Theatre	Weds. & Fridays at 10.30 a.m. Sats. 11 a.m. First Class, Fri., May 6th	Biology Laboratory

GUY'S HOSPITAL DENTAL SCHOOL

TIME TABLE—SUMMER TERM, 1932.

Subject	Lectures	Place	Practical	Place
INORGANIC CHEMISTRY	Tuesdays and Thursdays at 9.30 a.m., commencing on Thursday, May 5th	Chemistry Theatre	Thursdays 3–5 p.m. and Fridays 10 a.m. to 12 noon, commencing on Thursday, May 5th. When no Lecture, Practical Class 2-5 p.m. on Thursdays.	Chemistry Laboratory
ORGANIC CHEMISTRY	Thursdays at 2 p.m., and Fridays at 12 noon, commencing on Thurs., May 5th	Chemistry Theatre		
PHYSICS	Tuesdays and Thursdays at 10.50 a.m., and Tuesdays at 12 noon, commencing on Thursday, May 5th	Class Room IV	Mondays 10–1 p.m. and 2–5 p.m., commencing on Monday, May 9th	Physics Laboratory
BIOLOGY	Wednesdays 9.30a.m., Thursdays at 12 noon, and Saturdays at 9.30 a.m., commencing on Wednesday, May 4th.	Biology Laboratory	Tuesdays at 2 p.m., and Fridays at 2 p.m., commencing on Friday, May 6th	Biology Laboratory
DENTAL METALLURGY ..	Mondays and Wednesdays at 10.15 a.m., commencing on Monday, May 9th.	Chemistry Theatre	Thursdays at 2 p.m., commencing on Thursday, May 5th	Metallurgical Laboratory
DENTAL PROSTHETICS ..	Mondays at 4 p.m. commencing May 9th	Anatomical Theatre	Fridays at 1.45 p.m., commencing on May 13th	Dental Laboratory
ANATOMY	(1) *Junior Lectures*— Wednesdays at 11 a.m., Fridays at 9.30 a.m., commencing on Wednesday, May 4th (2) *Demonstrations*— (*a*) Bones— Tuesdays at 9.30 a.m., commencing on May 10th (*b*) Soft Parts— Thursdays at 9.30 a.m., and Fridays at 10 a.m., commencing Thursday, May 12th	Anatomical Theatre Anatomy Demonstration Theatre Anatomy Demonstration Theatre	Daily from 9 a.m. to 5 p.m., commencing on Tuesday, May 3rd. Dental Students who have completed one term's work in the Department must enter their names for "parts" in the Dissecting Room.	Dissecting Room
PHYSIOLOGY	Thursdays at 10.30 a.m., commencing May 5th	Physiological Theatre	Thursdays at 11 a.m., commencing May 5th	Experimental Laboratory
DENTAL ANATOMY ..	Tuesdays at 12.15 p.m., commencing May 10th	Physiological Theatre		
DENTAL HISTOLOGY	Mondays at 2 p.m., commencing May 2nd	Pathological Theatre	Mondays at 2.30 p.m., commencing on May 2nd	Pathological Class Room
DENTAL DISEASES OF CHILDREN ..	Tuesdays at 4 p.m., commencing May 10th	Anatomical Theatre		
OPERATIVE DENTAL SURGERY	Mondays at 4 p.m., commencing May 9th	Physiological Theatre		
DENTAL MATERIA MEDICA	Mondays at 2.15 p.m., commencing May 9th	Physiological Theatre		
GENERAL BACTERIOLOGY ..	Tuesdays, Wednesdays and Thursdays at 12 noon, commencing Wednesday, April 26th	Pathological Theatre		
DENTAL BACTERIOLOGY ..			(*a*) Mondays 4–5 p.m., and Thursdays 5–6 p.m. (*b*) Mondays 5–6 p.m., and Thursdays 4–5 p.m., commencing on Monday April 25th.	Pathological Class Room
MEDICINE DEMONSTRATIONS ..	Tuesdays at 4 p.m. commencing on May 10th	Class Room III		

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

IT is generally known that for a considerable number of years the financial affairs of the Hospital have been in a highly precarious position. Not only has income from endowments and other sources steadily decreased, but expenditure has increased, with the result that the Hospital now finds itself so financially embarrassed that any business concern in a similar position might find itself on the verge of bankruptcy. We therefore welcome the institution of a sound and constructive scheme whereby a steady source of revenue will be provided. Up till now efforts to raise money have consisted of appeals in the press, jumble sales, dances, garden fetes, and so forth. The money thus raised has been in small and insignificant amounts, which represent mere drops in the ocean when the alarming indebtedness of the Hospital is considered.

At last, however, a scale of charges has been put into force whereby those attending the Out-Patient Department will have to pay small amounts for the privilege of receiving treatment. On the first attendance each patient will have to pay an initial registration fee of one shilling, and subsequent charges will be made for medicines and dressings, and treatment in the Massage, Actino-therapeutic and Vaccine Departments. A special fee will be charged for X-ray examination.

We feel that this is quite definitely a move in the right direction, and trust that it is not too late even now to save the foundering ship. We suggest, moreover, that the scheme should, if possible, be extended so as to include In-Patients. Many of those who are now receiving gratuitous treatment are well able to contribute a certain amount towards the expense of their stay in the wards. When Thomas Guy founded the Hospital he intended that it should be for the use of the sick poor, and he did not visualise a time when a large number of the patients would come from the middle classes. This time has now arrived, and if the Hospital is to survive, the ideals laid down by its founder will have to be considerably modified.

MUCH interest has been aroused of late by a pigeon's nest which has been built in one of the trees in the Park. Many dignified members of the Staff have been observed casting surreptitious upward glances to where sits the noble bird, the very embodiment of matronly pride.

Among the Hospital ornithologists there has been much speculation as to the contents of this lofty structure. Not a little friendly rivalry has been exhibited by these keen students of Nature in their frenzied endeavours to be the first to acquaint an anxious public with news of a possible increase in the avian population.

Thus we have become accustomed to see otherwise normal persons leaning precariously out of the windows of Clinical, making weird noises calculated to scare the occupant into leaving the nest free to reveal its secret.

These methods have not been altogether satisfactory. The palm must, therefore, definitely be awarded to the enterprising individual (we suspect someone high in authority) who, by some means best known to himself, contrived to enlist the services of the London Fire Brigade in the solution of this all-important question. This body, ever ready to respond to such an appeal, hastily sent one of their latest fire-escapes manned by men picked both for their fine physique and their knowledge of bird life.

We are well aware that this ruse was accomplished under the alleged pretext of ascertaining whether the life-saving appliance could easily gain entrance to the Hospital grounds in times of emergency. We feel, however, that few, if any, will be deceived by such an unlikely explanation. Moreover, strength has been lent to our con-

victions by the fact that, on the departure of the fire-escape, the word was quietly passed round that three, if not four, happy events are likely to occur shortly amid the branches of the seventh tree on the right.

WE should like to welcome home Mr. Fagge, who has returned from his mission in Australia and New Zealand. We feel that the medical profession in these dominions will have benefited considerably from his visit, and we look forward with interest to hearing an account of his experiences and exploits.

WE hear that at the Jumble Sale held on Saturday, April 30th, the sum of approximately £165 was raised. We should like to congratulate Mrs. Davies-Colley and her co-workers on this very praiseworthy effort.

WE regret that we omitted to insert the name of Surg.-Capt. Robley Browne beneath the obituary notice which he so kindly wrote on the late Dr. G. H. Metcalfe in the last issue of the *Gazette*.

Notice

NATIONAL HOSPITAL, QUEEN SQUARE MEDICAL SCHOOL

M.R.C.P.

A course of demonstrations in Neurology for candidates for the M.R.C.P. examinations will be held from May 20th to July 11th, on Mondays and Fridays, at 6 p.m.

Fee for 16 demonstrations, £6 6s. Special terms can be arranged for those unable to take the whole course of lectures. Applications should be made to the Secretary.—J. G. Greenfield, Dean of the Medical School.

Mild Infections of the Urinary Tract

A Clinical Lecture delivered at Guy's Hospital on Monday, May 2nd, 1932, by A. Ralph Thompson, Esq., Ch.M., F.R.C.S.

GENTLEMEN,—In many cases of medical interest I dare say it has occurred to you that there is frequently an initial difficulty with regard to nomenclature, and the subject of this lecture is no exception to this statement. There is a term in frequent use in connection with the subject of this lecture, namely, bacilluria. The main organism in the urine need not necessarily be a bacillus; it may be a coccus, and for this reason the term "bacilluria" is open to objection. But there is an even more cogent objection to the term, as it is merely a statement of a condition, and it must never be taken as a diagnosis.

During the time the genito-urinary department here has been open we have seen great changes in the conception of clinical conditions, and in this connection it may interest you to know that at one time hæmaturia was regarded as a diagnosis, and was so accepted. And the condition was treated more or less successfully with drugs. But hæmaturia is not a diagnosis; it is merely a statement that blood is present in the urine. In the same way, hæmoptysis is a term employed to imply that bleeding is taking place from the respiratory passages, and hæmatemesis is a statement that blood is coming from the upper part of the alimentary canal. Though bacilluria requires a microscopical examination to be recognised, it is no more than a statement of fact; it is not a diagnosis.

For this reason, and also because the term "bacilluria" is so frequently used, I have entitled this lecture "Mild Infections of the Urinary Tract." I do not wish to imply that every case in which micro-organisms are found in the urine is a mild one, for grave lesions may be found in the kidneys or in the bladder, or there may be grave general disease, such as typhoid fever, and in those cases the diagnosis of the disease may be fairly obvious. But we may be led astray into thinking that because bacilli are found in the urine then some form of vaccine treatment may be indicated. Please do not think I am illiberal enough to assert that vaccine treatment does no good; I am, on the contrary, sure that vaccine treatment does much good in some of these cases. But what I do want to impress upon you is that finding a bacillus or a coccus may mask the real disease, and so time may be lost in treating with vaccines what might be more reasonably treated with the knife. I remember very well the case of a Belgian refugee who came to see me at the end of the war. There were gonococci in some urethral discharge, and he was at first treated for gonorrhœa. But when he was more completely examined it was found that he had a malignant prostate, with secondary deposits of malignant disease in the liver. The large prostate had at first been regarded as a prostatitis due to gonorrhœa; what the gentleman who made that

diagnosis thought of the enlarged liver I do not know. I mention that case to warn you against trusting too much to the result of bacteriological examination and, perhaps, neglecting to make a thorough clinical examination.

Neither do I wish to indicate that I consider that the presence of gonococci in the urine or in the urethral discharge come under the heading of mild infections of the urinary tract. I am saying now that the bacteriological inquiry may obscure a serious clinical condition. I have known a man who had pus and b. coli in the urine being vaccinated with b. coli vaccine for years without an examination being made with the cystoscope. A partially sacculated stone was found in the bladder, and that stone was removed. I heard that the man had died 18 months after the operation with symptoms of pyelo-nephritis. I have shown, in the *Guy's Hospital Reports*, that there may even have been stones in the kidneys. And though vaccines may have done good, surely we may say that treatment directed to removal of the stones earlier would have done good also. In private practice it may be impossible for one to make a complete examination in a person consulting us for some infection of the urinary tract. There may be localising symptoms pointing primarily to the kidneys or the bladder, and in the absence of grave symptoms one would be justified in treating cases as mild ones, and even using vaccines prepared by a competent bacteriologist. But if the disease goes on, a more complete examination is certainly indicated.

In this connection I had the case of a man, aged 51, who consulted me because of frequency of micturition and pain in the bladder. He had been regarded as a case of bilateral renal tuberculosis, and a grave prognosis had been formed and appropriate treatment was adopted. But the patient did not wish for such treatment, and I cystoscoped him, and found nothing to warrant the diagnosis of tuberculous disease. He came to me on a cold day in Spring, and he had been able to hold his water for an hour. His bladder was able to hold, without an anæsthetic, 120 c.c. of fluid, which did not indicate that there was at any rate extensive tuberculosis of his bladder. It is impossible to conceive of a bilateral renal tuberculosis without tuberculous disease of the bladder. Pus was coming from both kidneys ; it was thin. Not much comes from the kidneys in cases of bilateral renal tuberculosis. Also there was no ulceration of the bladder in the nature of tuberculosis, and neither kidney could be felt. And we could not find any tubercle bacilli in the urine, though it was stated that once they had been found. The other examinations proved negative in this respect. B. coli were found in the urine, and were grown from the specimen I sent for bacteriological examination. He was given the treatment I always give in such a condition. First, a dose of castor oil, and, after this had acted, he was given a mixture of salol 10 gr., liq. strychninæ 2 m., mucilage of tragacanth and water to the ounce, 1 oz. being given three times daily. The urine was very cloudy with pus, but did not contain additional albumen.

Before going into the result of that treatment, I wish to draw your attention to the fact that, five months before seeing me, he had had a severe attack of so-called influenza. I did not doubt that in this case the disease was influenza, but what I want you to understand is that cystitis may cause many of the symptoms associated with influenza, and I have sometimes wondered whether the disease associated with cystitis is influenza. However that may be, I have seen many cases of so-called influenza followed by an attack of cystitis, and I am sure that, in suitable subjects, the so-called common cold may run to the bladder, producing a cystitis, especially in elderly people. This patient, in less than five weeks after the salol and strychnine had been commenced, was much better, the urine was clear and contained no albumen, and, so far, he is merely a case of simple cystitis following upon influenza, in which b. coli was found in the urine.

Why do we give these drugs, salol and strychnine, in cases of infection of the urinary tract—and especially of the bladder? I do not doubt that the bacilli in the urine come from the bowel. Perhaps I ought to know, but I do not know of any demonstrable lymphatic connection between the kidneys and the bowel. But I know that with growths of the ascending colon the right kidney may show secondary deposits, and with growths of the descending colon the left kidney may be similarly affected, which facts suggest that there is a lymphatic connection. Moreover, I have had a case in which the left kidney was definitely proved to be septic, and in that case there was a hæmorrhagic colitis which may have been due to lymphatic spread from the adjacent kidney. Therefore salol is used for disinfection of the intestinal tract, and it gets rid of the bacilli which may infect the kidney from this source. Strychnine I have a great respect for in this connection, as it stimulates the involuntary muscle of the bowel and of the bladder, and helps to get rid of the bacilli from the bowels and leads to a more complete contraction of the bladder muscle, and so to a more complete bladder emptying and the expulsion of infected urine from it. And you will find that

the strychnine almost acts as a sedative, and it acts as a sedative through it being a stimulant.

In mild infections of the urinary tract, expecially if they be associated with some obstruction to the passage of urine, such as stricture of the urethra, which we find so commonly in the genito-urinary department, we also find that strychnine and digitalis in small amounts do immense good; but there is no use in administering these drugs if the obstruction is not overcome, such as in cases of acute and frequent retention due to enlarged prostate. In such a case no amount of stimulation of the failing bladder will make the patient pass his water better, because the obstruction is absolute. I have come to rely so much on this method of drug treatment that I have almost given up other drugs. But the following mixture may be usefully employed: 6 gr. each of urotropin, boric acid and papain. The last item was used by me on the recommendation of Dr. Rattray, who is now in practice in the Straits Settlements. I said that some of the patients complained of the boric acid, that it appeared to cause indigestion. He suggested that I should cut down the dose, but that I should add papain, and that was the original reason why I added it. I think that, in all cases of bacilluria, there should be good digestive power, and I continue to use the papain not only to increase the power of digestion of the boric acid, but also to increase the general vigour of dealing with food.

But though in these cases of mild infection of the urinary tract, whether cystitis or pyelitis, this medicine may do good, I think that an alkaline mixture is most useful in a large number of cases, especially in those in whom the urine is acid, as it so frequently is in cases of b. coli infection. For this purpose I prescribe potassium citrate, and I combine with this potassium iodide; I find that better results are obtained with the latter addition than using the potassium citrate alone.

As to diet in these cases, I feel it is very important to avoid the eating of raw fruit; all fruit eaten should be cooked, even oranges and grapes, though the flavour of cooked grapes is not likely to be very exhilarating! And nothing spicy should be eaten, especially highly spiced things.

It will be better now if we discuss the local treatment of conditions associated with bacilluria. Bacilluria is said to be more common in females and in children than in male adults. First, women are accustomed to holding their water for a longer time than men are; their bladder appears to be bigger than the male bladder and its shape is also very different. The bladder of the female is broad and frequently has two lateral fornices, one on each side of the bladder, in which urine may remain, and so the woman's water may not be completely evacuated. Further, when there is prolapse of the vagina, as is so commonly the case, part of the bladder in the trigonal area and around the ureteric openings is dragged down by the falling bladder and a "bas fond" is formed. In this "bas fond," mild urinary infection may take place. Similarly with the bladder of old people there may be a "bas fond" without there being an enlarged prostate, and this may become infected, but if there is a large prostate, then the "bas fond" will be all the more developed and infection all the more likely to occur.

I always completely drain the bladder when there is any retention due to enlarged prostate, and I do this for a very definite reason. The urine may be clear all through until the drainage of the base of the bladder is passed, and then drops of pure pus are drained away. Sir Henry Thompson was accustomed to draw attention to this as being evidence of basal cystitis, but whether this be correct or not there can be no doubt that there is some form of mild infection of the bladder.

The formation of a "bas fond" with prolapsed vagina, or in elderly people without any obvious cause, or in males with an enlarged prostate, is very important, and should not be neglected as a cause of mild infection, and should be treated adequately, even if vaccines are being given for the condition.

Those conditions are to be looked for whenever you get a state of bacilluria. You must not be content to diagnose bacilluria unless you have excluded first those simple conditions, and never forget them as being a possible cause of mild infections of the urinary tract. No vaccines will do much good unless you get rid of such pathologico-anatomical conditions.

The neck of the bladder also may be elongated in these cases of prolapse of the vagina, and, being associated with prolapse of the vagina, may indicate that there is a "bas fond" behind it. This is estimated by noting how far the cystoscope must be passed before the bladder is seen lighted up. The ureteric openings in such cases may not be seen at all, but swirls of fluid may be seen coming from behind the summit of the ridge, on which the openings are usually placed. You cannot see the urine unless it is purulent or mixed with blood when it is coming down from the ureters. You can see the ureter opening, and you have a feeling that something is being discharged, but you cannot actually see the urine unless it is either purulent or sanguineous. But you can see the swirl in the bladder fluid when the fluid comes down. So remember that if you see with the cystoscope a

coloured fluid coming down into the bladder, that fluid is abnormal.

Now I want to speak of a very characteristic appearance which may be seen with the cystoscope in some of these cases of mild infection of the bladder with bacilli or cocci. It is what I describe as a carpet-pile appearance of the mucous membrane. I once told Mr. Ogier Ward that at St. Peter's Hospital, and he said he had not recognised it in that way before, but he quite understood the simile. The mucosa may be injected, but it is more frequently paler than usual; what you see with the cystoscope is a pale carpet-pile appearance, and you will judge from that description that the mucosa appears thickened. This is seen all over the surface of the bladder, not merely at the base, and it is likely there are similar appearances in the pelves of the kidneys, but I cannot be sure of this. In many cases there is pyelitis, as shown by the pus which is seen coming through the ureteric orifices, or a collection of urine from ureteric catheters. The right may be more frequently affected than the left. But at present I have not collected my cases sufficiently to come to an authoritative opinion about this matter.

I can tell you of a single case which is important in this connection. When pus is coming down from the kidney it is sometimes difficult to see anything in the bladder with the cystoscope, and the same remark applies to the descent of blood from the kidney on one or both sides. The bleeding, which is caused by some condition in the kidney, may obscure the part you are examining a good deal, so students may never be able to see anything in these cases. I take ten seconds to look through the cystoscope and find the ureteric orifice, and by that time it is probably obscured by the blood which is coming from the kidney. In the case I am speaking of the difficulty was overcome in a simple way. I took a catheterising cystoscope, left the catheters out, and ran the fluid through one opening in the cystoscope and let it come out through the other. This gave a clear view of what was happening. Sulpho-indigo tate was injected, and we all saw the dye coming out from the left ureter with a normal appearance. There was a sudden opening of the ureteric orifice and a sudden discharge of dye, but no dye coming from the other side, or it was obscured by the passage of blood. This difference on the two sides made an impressive cystoscopic picture, of which I retain a distinct recollection. The right kidney was cut down upon, and we found, after opening the kidney from the outer edge, that there were many white areas on the cut surface.

This may give us some idea of the lesion associated with mild infection of the kidney. It did not look like tuberculosis. We left the kidney *in situ*. But the patient lost his bleeding, and recovered so far as his stay in the ward was concerned. He never reported afterwards, though he was asked to do so.

I mention that case because in my collection of post-mortem reports, covering 20 years at Guy's and other hospitals, I have not been able to include a case of such mild infection or inflammation as is implied by the term "bacillary"; but some authorities seem to think that one of the results of bacillary infection of the kidneys may be scarring. If we exclude cases in which the cause of the scarring may be obvious, as in endocarditis with infarcts, we may say that certain cases which come to autopsy may be examples of old bacillary infection of the kidneys.

Let me record one case of bacillary infection of the urinary tract which occurred in a man 40 years of age, who had a good deal of pus in his urine. It was diagnosed as pyonephrosis by Dr. Trail Thompson, of Wembley, whose powers of diagnosis were equalled by those of no other practitioner I have ever met—he is dead now, so I can say that. When I came to try to cystoscope the patient I found that the cystoscope could not be introduced through the urethra; he had a stricture in the usual place. When this was dilated he lost all the pus and recovered. So here is another cause which you must be on the look-out for.

Local treatment of the bladder may do good, but unless irrigation is carried out properly it may do harm. The rule for irrigating the bladder is—never run more than 4 oz. of fluid into the bladder. Sir Henry Thompson used to give his dressers a syringe which was not capable of holding more than 4 oz. And the second point is that the same quantity as you put in must be funnelled off. For this purpose a very good solution is Sir Henry Thompson's fluid, which consists of bi-borate of soda 1 drachm, glycerine 2 oz., water 2 oz. Mix these and put half an ounce into 4 oz. of hot water.

Here are some additional points. Pass an instrument which has as large a lumen as possible. If you select a No. 12, see that it has a larger lumen than a No. 11. For putting fluid into the bladder it is better to use a funnel and tube than a syringe, but see that the inside of the tube is clean. Remember also the question of air-block, which may be a nuisance to people who are not accustomed to doing many bladder washings. See that fluid runs along the tube wall before fixing the tube to the catheter. When the 4 oz. of fluid has been run in, syphon off and see whether the fluid is

clear, because if the washings do not clear you may be certain that pus is coming not only from the bladder, but from the kidneys. If and when the fluid runs clear, leave in some antiseptic, such as iodoform emulsion, or gomenol oil. You may colour the gomenol oil with logwood. The gomenol oil being lighter than urine, as the bladder fills up the gomenol rises to the top of the urine. As it is passed it must come down to the level of the urethra, and the first drops of gomenol which are passed are an indication that the patient must stop passing his water. In many cases in the male patient, gomenol may be kept in two or three weeks, and is having an antiseptic action all the time and it is a useful sedative. I have seen tuberculous bladders clear up quickly with the use of gomenol oil, coloured, if necessary, with logwood.

The question is frequently raised whether you should have a catheter retained through the urethra into the bladder—that is, whether you should go in for continuous drainage. That depends on circumstances. If you have great difficulty in getting a catheter in, or if the urethra is painful, I think, on the whole, I should recommend the surgeon who has not much experience to put in a catheter and tie it in. But in the case of our dressers here to-day we need not worry about such difficulties. I should expect a dresser to pass a catheter twice a day and draw off urine from the bladder and wash out the bladder. A tied-in catheter may increase sepsis and cause orchitis, but if one has to be tied in, an important rule is to have the scrotum and testes well raised and give quinine in solid form. I think you will find that method of treatment will prevent orchitis.

Stricture which is due to gonorrhœa may be associated with syphilis. In 20 per cent. of veneral disease cases, gonorrhœa and syphilis are associated in the same patient. Therefore if you have bacilluria associated with stricture you will do well to give mercury and iodide of potassium, as well as the more obvious drugs.

Those, then, gentlemen, are some of the clinical aspects of what is known as bacilluria, though I hope you will not call the condition by that name, but by that of mild infection of the urinary tract. I have indicated to you the treatment which I have found successful in the Genito-Urinary Department at Guy's Hospital.

(Sister Christopher has on sale, price 3d., copies of an address by Mr. Thompson on the treatment of enlarged prostate by prostatectomy before, during and after operation. The whole of the proceeds of sale will go to Guy's Hospital.)

Uræmia

A Paper read before the Physical Society by A. J. Grace, Esq., B.A. (Sask. and Oxon.).

MR. CHAIRMAN and GENTLEMEN,—In his Harvey Lecture in 1913, Janeway stated three problems the solution of which was most necessary for a clearer conception of the symptoms of renal disease. These were œdema, hypertension and uræmia. We, of this hospital, have peculiar reason to take an interest in nephritis in all its aspects. Sir William Hale-White's inspiring lecture, published in the *Gazette* of January 9th, clearly defining the close relation which has existed for over one hundred years between Guy's men and all the outstanding advances of knowledge in the realm of renal affections, must have fascinated all of you. A moment's reflection upon the zealous manner in which Dr. Osman is now attacking the many obscure problems in this field brings home to one the fact that this is a live issue at the present time. Finally, this society has been privileged during the last year in hearing Dr. Letheby Tidy's illuminating address on Nephritis and Mr. McArdle's excellent discussion of Œdema. In view of these facts it would seem that uræmia is a subject with unique claims upon our consideration; however, I feel not a little presumptuous at undertaking this task, which is so closely connected with so many distinguished names.

The first great difficulty arises at the very outset and concerns the question of definition. The term "uræmia" has been in use now for rather less than a century, during which period its exact signification has varied constantly in keeping with the current views. From time to time new facts have been discovered, previous observations confirmed or rejected, fresh theories brought forward; each time some modification of the opinions of uræmia and its causation naturally ensued. Leiter[45] has aptly described the result in the words, "Every author had a different idea of uræmia." Out of much confusion one salient point has emerged, that this term can be applied correctly only to certain fairly well defined syndromes accompanying a deficiency of renal functioning. Generally speaking, this is the sense in which the word will be used in this paper. Admittedly this definition is not perfect, for it takes no stock of

certain closely related symptom-complexes in which the changes in the blood chemistry may be strikingly similar, but which differ completely in respect to the ætiological factors. Such conditions may occur spontaneously in the course of some other affections, or may complicate chronic kidney disease and simulate true uræmia very exactly, or they may arise under experimental conditions; these will be considered further later.

Since there has been so much confusion attached to the conception of uræmia, a very brief outline of the historical aspects merits attention. On this basis alone can be built up an understanding of what Meakins[50] has characterised as a "pot-pourri of symptoms without a clear-cut individual ætiology and classification."

Until the time of Bright many symptoms and secondary results of diseased kidneys were quite misunderstood. Bright first realised and emphasised their true relationship. In this connection his own words are so eminently expressive as to deserve repetition: "We know that when the kidneys perform but insufficiently their office of depuration the whole body quickly feels the shock; and if the deranged action continue long, the urea can be detected by the chemist's art, in the course of the circulation. The body becomes enervated; the mind loses it elasticity; and a decay, marked by anasarca, or a more sudden death, from attacks upon the nervous system, or from supervention of uncontrollable inflammation, sooner or later closes the scene."[13] Bright believed that urea was largely responsible for the symptoms noted. However, it is clear from his writings that he appreciated not only the occurrence of cardio-vascular changes in many of the cases, but also that these played a part in causing the symptomatology.

In 1833, Wilson,[70] speaking before the College of Physicians, stressed the relationship of an increase of urea in the blood to fits and sudden death occurring in connection with disease of the kidneys. He described marked renal disorganisation as the only significant post-mortem finding in such cases, in which all the clinical evidence had pointed to a cerebral lesion, and concluded that there had been poisoning of the brain by retained urinary products. Wilson stressed the close relation that exists between the kidneys and the other organs, and insisted that the value of the influence of the kidneys must be judged, "not by what they throw off, but by the blood which they return to the circulating mass."

It will be evident from what has just been said that the first important step towards an understanding of the manifestations of renal disease was made in this country. The term "uræmia" seems to have originated in France by Piorry in 1847, being meant to designate "an intoxication resulting from insufficient depuration of the blood by the kidneys."[30] It is only fair to state that some reliable authorities have attributed the origin of the above word to Bright,[11 34] showing that there is no unanimity of opinion on this point. In the years which followed, the literal meaning of the appellation was forgotten, and it was frequently used more or less synonymously with the expression "Bright's disease." Nevertheless, true uræmia is not a disease in itself, but is merely a collection of symptoms occurring, usually terminally, in some cases of renal disease. Abundant efforts were made to account for all the observed phenomena on the basis of a single pathology, but these inevitably met with failure, notwithstanding that every conceivable factor was invoked at one time or another. Among the publications of the earlier French workers there stands out an extremely comprehensive monograph on "Experimental Uræmia," by Feltz and Ritter.[28] Although their results are open to some question on the basis of modern knowledge, they did show fairly convincingly that the one particular factor was not to be found among the chief constituents of normal urine, nor was it one of a group of other substances, including various amino acids, certain purine bases, etc.

It remained for the German school to sort out the jumble and establish as essentially distinct several entities formerly all regarded as uræmic. This was done in the early years of the present century. Ascoli [25 46] drew attention to the difference between the clinical picture developing in the presence of mechanical obstruction to the urinary tract and that seen in the terminal stages of chronic nephritis. A few years later, Widal,[25 46] in France, distinguished two types on the basis of what he believed to be the principal changes in the blood chemistry: an azotæmic or nitrogen-retention type, and a chloruræmic or chloride-retention variety. Reiss[46] followed with a symptomatic classification in which emphasis was placed upon the most striking manifestation in each case, without regard to the blood changes. His three types were as follows: (1) Asthenic uræmia, (2) convulsive uræmia, (3) psychotic type. He further noted a group of mixed cases with features belonging to both of the first two varieties, and that there was a retention of non-protein nitrogen in the blood to a significant degree in the first type alone. This latter observation influenced Strauss[46] to reserve the title "true uræmia" for those cases in which there was a retention exceeding 150 mg. in 100 c.c. of blood, the other cases being grouped together as "pseudo-uræmia." Accepting this classification in the main, Volhard[25] divided the

latter, according as the changes came on acutely and were characterised by convulsive seizures or were chronic in onset and the outcome of prolonged hypertension.

More recent efforts have added nothing in the way of classification. However, much exact work on the biochemical aspects of the question has contributed materially to the clarification of the subject while adding impetus to its study. The tremendous advances in regard to accurate estimations of the constituents of the body fluids and tissues constitute a monument to American perfection of technique; names such as Folin, Marshall, Van Slyke and Cullen, to mention only a few, are familiar to us all. The chief results of many painstaking researches will be applied under the appropriate headings. It will be appreciated that a thorough understanding of uræmia will eventually prove possible only when, laboratory technique and clinical judgment and experience being in complete accord, each section of the problem is attacked from every aspect.

In this paper it is intended to discuss especially the pathogenesis of true uræmia. In order to do this it is necessary to have in mind a clear picture not only of this condition itself, but also of those other clinical conditions to which the term has frequently been applied incorrectly. Three groups of cases will demand consideration, as follows :—

1. True uræmia, including two separate subgroups—
   (*a*) Chronic uræmia, occurring typically in the course of chronic azotæmic nephritis.
   (*b*) Urinæmia or "urinary poisoning," resulting from anuria.
2. Convulsive, epileptiform or eclamptic uræmia.
3. Pseudo-uræmia (chronic pseudo-uræmia of Volhard).

Broadly speaking, the first group, corresponding to the asthenic type of Reiss's symptomatic classification, is invariably associated with some degree of retention of waste products in the blood. Often these attain relatively high values. The second type of case is named after its most striking manifestation, and seems to depend upon changes in the central nervous system apparently quite unrelated to any retention of nitrogenous bodies. The weight of recent evidence points strongly to the underlying factor of this variety being a retention of salt and water, and therefore corresponding, at least in part, to Widal's chloride-retention type. The third class depends solely on cardio-vascular changes and has no basis in renal disease. Renal lesions, when present, are accessories, and themselves the results of the same morbid processes that produce the symptoms. These cases are included here because the underlying factors, although rarely leading to a mistaken diagnosis in a straightforward instance, so frequently complicate cases of true uræmia. A proper comprehension of the latter can, therefore, be achieved only by realising and excluding the consequences of the various adventitious factors. In our further discussion it will be noticed that the term "pseudo-uræmia" has been extended by some to cover certain other more or less distinct conditions; these cases, differing in regard to pathogenesis, will be excluded from the expression as used in these pages for a pure type, as defined above.

It is obviously unnecessary to describe in detail each class of case, but a brief account of the main features may prove of value. Before doing so it must be pointed out that typical examples, such as it is proposed to describe forthwith, are often in the nature of concepts rather than of tangible entities; mixed cases are by no means uncommon. The truth of this statement depends in particular, no doubt, upon the fact that chronic uræmia, which occurs the most commonly, develops in the course of a chronic affection in which phenomena typifying the other groups are also commonly met.

TRUE URÆMIA

The two divisions collocated under this heading have much in common. Both are invariably associated with defective renal excretion, while the clinical pictures have more than a superficial resemblance. However, chronic uræmia is the final stage of a prolonged process persisting over a period of months or even years, whereas in urinæmia the latent period is seldom greater than seven days, with a total duration of, perhaps, ten days. That the two conditions lacked identity was originally remarked by Ascoli, and has been emphasised by Foster,[33 34] who has stressed the following points: (*a*) In urinæmia there is retention of all the constituents of urine, including water, to a proportionate degree; in chronic uræmia water is usually well eliminated, and there is a selective concentration in the blood of the various bodies, some being excreted much more readily and completely than others. (*b*) The time factor, already mentioned, must assume considerable importance, for the tissue cells might easily acquire a marked tolerance to gradually accumulating toxic substances. If uræmia be an intoxication, the analogy with poisoning with known substances would lend support to even greater divergences on a basis of the time element alone. It may be added that, whereas retention of waste products always tends to be extreme in urinary poisoning, this is by no means as constantly the

case in the chronic variety; indeed, cases have been described in which nitrogen retention has been practically negligible. This means that the changes in this type are less uniform and predictable; further, the nitrogenous accumulation may be masked as a result of prolonged use of a diet low in protein and rich in carbohydrate. In view of the common features belonging to these two conditions, one is prepared for a single pathogenesis, although certain differences might at first sight appear to be incompatible with this view.

True uræmia arises in any condition in which there has been such extensive damage of the kidney parenchyma that compensation by the remainder, operating, as a rule, together with some degree of hypertension, becomes inadequate and "renal insufficiency" becomes absolute in the sense used by Elwyn.[24] This corresponds to the "decompensated impairment of renal function" of Fishberg,[30] who states that the proportion of functional tissue that must be incapacitated is very great. Experimentally it has been found that three-quarters of the kidney tissue must be extirpated to give rise to uræmia. No doubt the damage must reach a much more extreme degree even than this in cases of slowly progressing injury. The actual lesions may be of an inflammatory nature, and either suppurative or non-suppurative; or they may result from toxic damage, for arteriosclerotic changes (the malignant nephrosclerosis of Volhard and Fahr), or from any other cause of extreme destruction of functional units, or "nephrons." A complete list of conditions likely to terminate in this manner is not necessary here, but as less common causes may be mentioned the following: polycystic renal disease, of which an interesting case has been fully described by Bennett;[5] various causes of progressive partial or intermittent obstruction to the urinary tract leading to hydro- or pyo-nephrosis; bilateral calculous disease or extensive renal tuberculosis, etc. Of course, the one condition wherein true uræmia occurs above all others is chronic glomerulo-nephritis, in which it provides the inevitable termination for progressive cases, unless robbed of its prey by intercurrent infection or other cause of death. In what follows the French term, chronic azotæmic nephritis, will be adopted for all conditions where chronic renal failure is associated with marked retention of nitrogenous and other bodies in the blood, and where a more exact terminology would serve no useful purpose as far as our subject is concerned. It may be pointed out here that cases of failing compensation may arise from other causes than directly renal, *e.g.*, heart failure will precipitate an inability to maintain an adequate high filtration pressure in the glomerular capillaries.

Urinæmia may result from any cause of sudden, complete or nearly complete, suppression of urinary excretion. This may be due to mechanical obstruction of the lower urinary passages or, very rarely, occlusion of both ureters. More often the cause lies in the operative removal of a single functional kidney or in involvement of the ureter of such an organ. Under experimental conditions bilateral nephrectomy or ligation of both ureters have been the methods of choice. Reflex calculus anuria sometimes occurs, while other reflex causes are believed to account for cases in which no adequate organic lesion can be discovered at autopsy. Rose Bradford has rightly stated that these cases are "tantamount to bilateral nephrectomy."[12] Most of us are familiar with at least the reports of such cases in this hospital within recent years, following either operation or parturition. An interesting series of cases has been discussed by Bordley,[9] where grossly impaired kidney activity has followed transfusion with incompatible bloods. Finally, instances of this class include some examples of acute diffuse glomerulo-nephritis where oliguria is excessive or even anuria may ensue. These latter may be confused by an association with the phenomena of convulsive uræmia.

It is not intended to embark upon a detailed description of all the possible clinical manifestations of true uræmia, for this aspect has lately been most ably discussed by Osman and Close,[58] while full accounts are given by Elwyn and by Fishberg, among others. Our attention will accordingly be devoted to a brief account of the principal features.

The onset in chronic uræmia is typically insidious, and is frequently precipitated by some condition imposing an increased strain on the organism. Among these precipitating causes one observes especially intercurrent infections, bilious attacks and general anæsthetics. Recognition of the last-mentioned point is of paramount importance before operations are lightly undertaken on doubtful subjects. In the urinæmia type the particular cause is usually evident, and the onset is, of course, more abrupt. The initial symptoms are often rather indefinite, and are likely to include some or all of the following: Physical and mental fatigue, anorexia, loss of weight, dyspnœa on exertion, and perhaps vomiting. Later characteristic groups of symptoms are usual from involvement of practically every system in the organism. In keeping with the major incidence of the morbid processes upon the alimentary and central nervous systems, the most prominent results are such as

would be anticipated from disturbance of these systems. Typical of affection of the former are loss of appetite, a furred tongue, nausea and vomiting, and sometimes diarrhœa. The complete list of nervous phenomena is most formidable, and the amount of variability is great. Most characteristically depressive symptoms predominate, with a gradual but unrelenting advance of lethargy, drowsiness, stupor, coma and death. Less often there may be symptoms due to overaction of the mental faculties, and perhaps of the motor centres too, such as worry, insomnia, inability to concentrate, physical restlessness, etc. A variety of other manifestations may develop, but many of these are really due to the effects of the cardio-vascular or other changes, chief of which is hypertension, which produces various effects that will be considered further under pseudo-uræmia. Headache, when present, is generally caused by the high blood pressure, but Fishberg maintains that there is a true uræmic headache which is typically of a dull character. Convulsions may occur, but are probably often due to a recrudescence of the kidney disease with underlying changes placing these really in the category of convulsive uræmia; muscular twitchings, particularly of a fibrillary kind, are very common occurrences. Purpuric hæmorrhages may be very marked, as in the recent case in Clinical. Severe dyspnœa may be troublesome; emaciation tends to be progressive, and a diminished basal metabolic rate and subnormal body temperature are not unusual in the later stages; anæmia is common and has been said to parallel the nitrogen-retention in degree. The skin is frequently of a yellowish, waxy colour, while pruritus and a variety of eruptions are often found.

Although all the disturbances commonly found in true uræmia have been by no means exhausted, enough has been said to enable one to appreciate the complexity of the subject from this aspect alone. It may be reiterated that the most characteristic symptoms, and at the same time those most frequently met, are the gastro-intestinal and nervous groups. Much confusion has at times arisen from the fact that some of the predominant symptoms, in an undoubtedly uræmic individual, are in reality due to other factors than the uræmia itself; these may be results of changes designed to serve a compensatory role, *e.g.*, hypertension, or they may be secondary to changes which are mainly the result of the chronic renal incapacity, *e.g.*, acidosis. Terminal inflammatory conditions and complications of the underlying disease of the kidneys may assume such exaggerated proportions as to overshadow entirely the uræmic picture which is present. In view of these points, one can anticipate difficulties in any attempt to unravel the pathogenesis of uræmia. Post-mortem findings, usually so helpful in tracing the results of morbid processes, offer but a feeble assistance in this instance, and that is mainly negative. One is left with the results of detailed studies of the blood chemistry, the findings from experimental efforts, and the deductions based upon the efficacy or otherwise of therapeutic measures; these will be considered in due course.

CONVULSIVE URÆMIA

Many recent writers have followed Volhard in designating this type pseudo-uræmia. This is certainly justified in that it differs markedly in almost every respect from the true uræmia already described, while the chief pathogenic difference from pseudo-uræmia would seem to be merely the rate of production. However, seeing that this variety does present a definite relation to disease of the kidneys, occurring typically during the course of acute diffuse glomerulo-nephritis, or less commonly in the subacute variety, and as acute exacerbations in the course of chronic nephritis, the classification previously given has been preserved. The term pseudo-uræmia is restricted, accordingly, to cases in which the observed changes are essentially and unequivocally cardio-vascular at bottom.

In its most characteristic form this type expresses itself as generalised epileptiform convulsions, identical with the attacks of *grand mal*, and hence demanding no special details here. A brief stage of tonic spasm is succeeded by one of clonic generalised muscular contractions, and this by a condition of coma. Recovery may then ensue or the attacks may recur at intervals. The picture of eclamptic uræmia is not always straightforward, for considerable variation in the manifestations is by no means unusual. Volhard has greatly simplified our conception of these cases by terming the less typical phenomena "eclamptic equivalents." Thus one looks for either the generalised seizures or for certain recognised substitutes, and a parallel promptly suggests itself in idiopathic epilepsy. Partial seizures may be seen, characterised by convulsive movements of one side of the body or of a single limb, or various atypical responses of a choreiform or other nature may occur; more rarely pareses may develop, *e.g.*, transient hemiplegias or monoplegias. Other cases present various affections of vision, with or without evident papillœdema or other local lesion. Auditory disturbances are also found, and mental changes may be indicated by delirium or even mania. The reflexes are said to be exaggerated as a rule, but abnormal reflexes such as an extensor

plantar response are distinctly unusual. Other common features include headache, vomiting, and perhaps slowing of the pulse and of respiration, or Cheyne-Stokes breathing.

The occurrence of "uræmic attacks" in the course of chronic azotæmic nephritis has been remarked upon by Rose Bradford, and Osman has commented on these as exacerbations of the underlying condition. Attention has already been drawn to these attacks, which must be carefully distinguished from purely (true) uræmic phenomena and from a type of false uræmia to be mentioned later. The existing nitrogen-retention of these cases is likely to make conclusions exceedingly difficult. Ability to view these in their proper light requires a knowledge of the clinical history of the particular individual together with cognizance of the blood changes belonging to the respective pure types.

PSEUDO-URÆMIA

The restriction of this title to cases of cardiovascular disease, corresponding to Volhard's chronic pseudo-uræmia, has been made clear above. It is noteworthy that Fishberg discounts any effort at separation between this class and Volhard's acute false uræmia (convulsive type). Nevertheless, border-line cases are of such frequency in any system of classification that lack of unanimity of opinion need not prove depressing. The leading manifestations are invariably cerebral in origin, bringing this group under cover of Fishberg's imposing appelation, "hypertensive encephalopathy." The chief symptoms need only be mentioned here. These include headache, vertigo, temporary blindness and aphasia, transient pareses, confusion or even delirium, Jacksonian epilepsy, rarely convulsions, stupor and coma

A variety of psychoses sometimes develops, embracing various hallucinations, mental disorientation, etc., and this suggests that this group probably corresponds to Reiss's psychotic uræmia. Respiratory abnormalities, tending to occur more particularly nocturnally, are seen in some cases. In all these patients there would seem to be some degree of hypertension, almost constantly in combination with vascular degenerative changes. Secondary effects arise in the kidneys as elsewhere and produce varying degrees of impairment of function, along with albuminuria; as a result, it is not always easy to differentiate a case from an advanced stage of chronic glomerulo-nephritis, especially when suggestive symptoms of true chronic uræmia are present. Indeed, the two conditions can grade almost imperceptibly into one another. Shaw,[63] in an interesting discussion on "Uræmia and Hyperpiesia," makes one further vigorous attempt to bring together all cases of uræmia under a single grouping. He discards the many theories purporting to relate this condition to kidney disease, retained metabolites, etc., and relates the histories and post-mortem observations concerning four cases of fatal clinical uræmia; in each case renal damage was extraordinarily slight, while the conspicuous feature prior to death had been marked hyperpiesia. Shaw stressed the importance of this factor, and thought it to be invariable. In the light of modern knowledge it is clear that the condition he really described was pseudo-uræmia and not true uræmia. Mistakes such as this can be avoided only by studying and separating the effects of each factor met.

Reviews

Royal Berkshire Hospital Reports, 1932. *Price* 10*s.* 6*d.* net.

THIS volume is to be the first of a series which shall annually perform a dual function. Firstly it shall place on record in print valuable work and cases of especial interest in the experience of the staff of the Royal Berkshire Hospital. Secondly, it shall in part constitute a "Proceedings" of the Reading Pathological Society in that at the Society's meetings many of the papers now published were originally presented.

No detailed list of the 17 papers can be given. As might be expected, they fall into two groups—notes of cases interesting because of their rarity, and some four or five articles in which a more thorough consideration of the material presented has been made in conjunction with a consideration of the apposite literature—the two giving birth to original conclusions and suggestions.

To deal with the second, and perhaps ultimately more interesting, group first. Mr. Paul Cave has written a most careful article of inquiry into the reasons for the so frequent osteoplastic metastases in cases of carcinoma of the prostate, as opposed to the osteoblastic secondaries so much more common from other organs. He uses a single case from the hospital as his text, but after a thorough analysis of the literature comes to the conclusion that the essential difference is one of means of dissemination, *i.e.*, lymphatic as opposed to blood-stream. Here he is not alone, but he further throws out a detailed suggestion of the mechanism of production of the osteoplastic reaction in bone by lymphatic spread.

Mr. J. L. Joyce has made a critical analysis of the diagnosis and treatment of 35 cases of diverticulitis of the colon. He writes deliberately as a surgeon, so that added weight is to be given to his

conclusions in favour of medical treatment in uncomplicated cases and the preservation of a conservative outlook should "active" surgery become necessary.

The clinical conception of glandular fever is still frequently somewhat hazy, and Dr. John Mills records the most valuable experience of two small epidemics in the vicinity of the hospital, besides summarising the literature. Particularly valuable is his frank account of the way in which certain anomalous features considerably delayed the making of the correct diagnosis.

One is so accustomed to think of the clinical picture of cerebral tumour as essentially that of an "organic" disease that Dr. H. S. le Marquand's paper on "Five Cases of Cerebral Tumour Simulating Functional Nervous Disorder" is a most useful corrective.

Dr. H. Parry Price, anæsthetist to the Royal Berkshire, analyses the results of avertin anæsthesia in 600 cases. In effect, he replies very thoroughly to the adverse critics of the drug. His replies include suggestions for the minimising of what inherent risks there are as well as much positive evidence of the value of avertin in a very wide range of sites of operation.

In the first group, choice is, perhaps, invidious, but if one mentions that there are reported two Cases of Spontaneous Rupture of the Aorta, by G. Lambert, M.D. (Cantab.), Two Cases of Splenomegaly (Gaucher's), by the same, A Case of Hernia Cerebri Cured by Removal of the Choroid Plexus in the Lateral Ventricle, by W. Bernard Secretan, F.R.C.S., and Two Cases of Staphylococcal Infection of the Epidural Space, by Dr. W. Norman May, it will be seen that notes of especial interest or rarity are well represented.

The Editor, Dr. Le Marquand, and the other contributors are to be congratulated upon their venture. It is only to be hoped that the staffs of other similar hospitals will be encouraged to place before the profession much valuable knowledge that must at present be entombed within the files of their case records. F. H. S.

Correspondence

Stitch

To the Editor of the GAZETTE

SIR,—Your talented contributor "E. T. C." is to be highly complimented on his comprehensive and illuminating explanation of the phenomenon of "stitch." I have for long felt that the circulatory explanation (distension of the spleen and stretching of its capsule) originally advanced and for a long time universally accepted was unsatisfactory, since, to mention only one objection, it would not explain its occurrence on the right side. At the same time, I doubt if your contributor is correct in his assertion that the right side is more commonly affected. It is precisely because the left side is so frequently the chief site of discomfort that the spleen was regarded as responsible. There are various traditional references, mainly apocryphal, in classical works, and I believe, too, in Holy Writ, to the operation of splenectomy in runners to avoid this inconvenience.

The absence of stitch in oarsmen is a tempting support to the circulatory hypothesis, and I must plead guilty to having used this argument some 20 years ago. Later it occurred to me that the explanation was the absence of vibration, jolting and similar forms of mechanical insult. Such disturbances were naturally most frequent in cross-country running, when the varying surfaces of the ground encouraged irregularity of action. I have sometimes thought that this is not the whole of the story. Other factors may not be entirely negligible—for example, a cold wind. But as cross-country running most frequently takes place in cold weather, the isolation of the responsible factor is a difficult one. I recall an occasion of the worst example of stitch I personally encountered when running in a cold wind, which persisted for 18 hours after the cessation of the exercise.

As your contributor states, some runners are notorious sufferers, and they are, in consequence, unreliable. I confess I have not been successful in recommending any measures to obviate their bugbear, especially in the attempt to discover and correct some imperfection in their action which was presumably responsible. In the light of the article under discussion it is probable that they were anatomically strongly predisposed.

I am most grateful to "E. T. C." for an essay which has supported my own observations and has given me fresh food for consideration.

Yours, etc.,

ADOLPHE ABRAHAMS.

86, Brook Street, W.1.

Notice

The Innominate Club, 1921

The Fourth Annual Dinner will be held at 7.30 p.m. on Friday, June 3rd, 1932, at the Trocadero Restaurant. In the Chair, Mr H. J. Selby. Those members who wish to attend please inform the Honorary Secretary, G. T. Hankey, 23, Gloucester Gardens, Hyde Park, W.2. Tickets, price 12*s.* 6*d.*

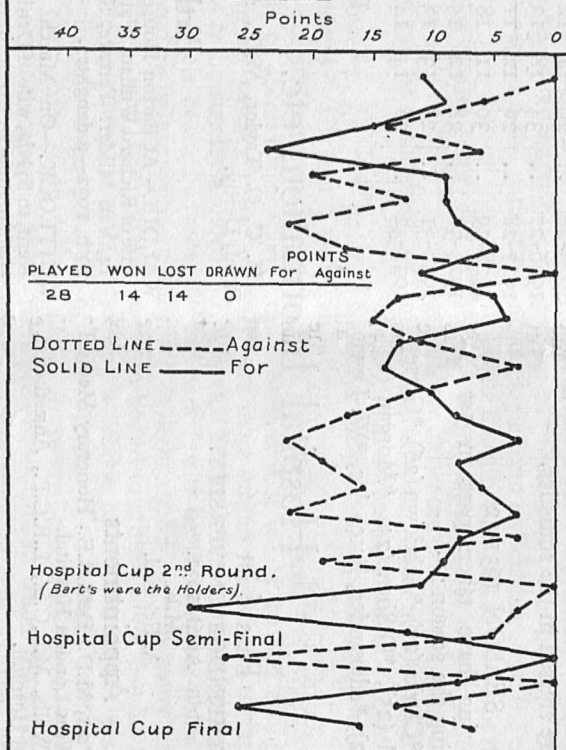
GUY'S HOSPITAL 1ST XV.

SEASON 1931-32

— Percentage —
50%

Average Points (For)
10·54

Average Points (Against)
11·54



OPPONENTS	DATE	G	Points F	A	SCORE For G	T	Against G	T	GOALS	TRIES
Catford Bridge	Sept. 19	H	11	0	2+	1	–	–	Hogbin 2.+	Ashdown 2.
Plymouth Alb.	" 26	H	9	6	2◇	0	1+	1	Hogbin, Lewis◇	Hogbin.
Portsmouth Serv.	Oct. 3	A	15	14	2◇	2	1	3	Hogbin, Lewis◇	Lewis, Ashdown, Giesen.
Cheltenham	" 10	A	24	6	4+	2	2++	–	Hogbin 4.+	Ashdown 2, Lewis 2, Thomas.
Harlequins	" 24	A	9	20	–	3	4	–		Hogbin, O'Shea, Howell.
Cambridge Uv.	" 28	A	9	12	2◇	–	2◇	1	Hogbin, Lewis◇	Johnson.
Coventry	" 31	A	8	22	2+	–	3◇◇	3	Hogbin 2.+	Fichardt.
Northampton	Nov. 7	H	5	17	1	–	3◇	1	Hogbin.	Ashdown.
Coventry	" 14	H	11	0	1	2	–	–	Hogbin.	Ashdown, Johnson, Alexander.
Portsmouth Serv.	" 18	H	5	13	1	–	1◇	3	Hogbin.	Alexander.
Birkenhead Pk.	" 21	H	4	15	1◇	–	–	5	Fichardt◇	
Bristol	" 28	A	13	11	2	1	1	2	Hogbin 2.	Clarke, O'Shea, Fichardt.
Richmond	Dec. 5	A	14	3	1	3	–	1	Hogbin.	Ashdown, Alexander, Johnson, Fichardt.
Aberavon	" 12	A	10	12	2	–	–	4	Hogbin 2.	Johnson 2.
Cardiff	" 19	A	8	17	1	1	2+	3	Hogbin.	Ashdown, Atkins.
Cardiff	1932 Jan. 9	H	3	22	1+	–	2	4	Hogbin+	
Birkenhead Pk.	" 16	A	8	19	1	1	2	3	Clegg	Johnson, Lewis.
Gloucester	" 23	A	6	16	1+	1	3+	1	Hogbin+	Ashdown.
Northampton	" 30	A	3	22	–	1	4◇	1		Alexander.
Cambridge Uv.	Feb. 3	H	8	3	1	1	1+	–	Hogbin.	Johnson, Drummond.
Rosslyn Park	" 6	H	9	19	1+	2	3+	2	Hogbin.+	Giesen, Ashdown.
St. Bart's	" 9	N	11	0	1	2	–	–	Hogbin.	Alexander, Giesen, Johnson.
Old Millhillians	" 20	A	30	3	6	–	–	1	Hogbin 6.	Hogbin 2, Ashdown, Giesen, Johnson, O'Shea.
St. George's	" 25	N	12	5	2++	2	1	–	Hogbin 2.++	Johnson 2.
Plymouth Alb.	" 27	A	0	27	–	–	4+	3		
Old Leysians	Mar. 5	A	8	0	1	1	–	–	Hogbin	O'Shea, Lewis.
London Irish	" 12	A	26	13	6++	–	3+	–	Hogbin 6.++	Alexander 3, Johnson.
St. Mary's	" 16	N	16	7	4+◇◇×	1	1◇	1	Hogbin 2++, Lewis◇, Drummond×	Johnson.

+ Penalty Goal. ◇ Dropped Goal. × Goal from the Mark.

Sport

Rugby

THE season of 1931-32 being completed, I have pleasure, as in past years, in enclosing chart and statistics of the 1st XV performances.

The figures are about the same as those of last season's, the same number of matches being played as in the past two years, viz., 28.

Three matches were scratched during the season, viz., U.S.C. Old Boys, O.M.T.'s and Aberavon, all at home.

An outstanding performance was that over Bristol away (few teams overcome this powerful West Country side on their own ground), and mention must be made on the return of the Cup, held last season by Bart.'s. Our opponents this season were St. Mary's, a side that has greatly improved during the past two years. We regained the Cup by defeating St. Mary's in the Final, 16 points to 7.

Special mention is due to Hogbin, who, if these records are correct, not only played in all games except one (viz., Birkenhead Park away), but who, as in the season of 1930-31, was the highest scorer—he this season having scored 108 points out of the total of 295 scored (see statistics for details). Clarke also only missed one match (Harlequins).

Taking the season's general results of "Rugger" over the country, one feels that the Hospital's side has maintained their position well in first-class Rugby.

Those players who took part in the Final against St. Mary's are starred in the statistics.

SEASON 1931-32

The following have taken part in 1st XV matches during the season :—

*Hogbin, *Clarke (27), *Ashdown (26), *Giesen, *Drummond (25), *O'Shea (24), *Morgan (23), *Johnson (22), *Alexander, Batchelor, *W. Lewis and *Clegg (21), *Cunard (19), Howell (15), Robin (14), *Eustace, *Leeming (11), Hunt (10), Fichardt (8), Thomas, Atkins, Popplewell (5), Wailer, Heberlien (4), Outred, *Darke, Rowlett (3), Lindsay, Campbell, Burrows (2), W. J. Morgan, Beckett, Peacock, Rees, Walker, Bowes, Cooper, Hall-Munro, Robinson, Jenet and Gareth (1).

The following have scored tries :—

Johnson (13), Ashdown (12), Alexander (8), Lewis (5), O'Shea, Hogbin and Giesen (4), Fichardt (3), Drummond, Howell, Thomas, Atkins and Clarke (1).

The following have scored goals :—

	Tries Converted.	*Penalty Goals.*	*Drop Goals.*
Hogbin	30	12	—
Clegg	1	—	—
Lewis	—	—	4
Alexander	—	—	1

Drummond .. .. Goal from the mark,

making a total of 58 tries, tries converted 31, penalty goals 12, dropped goals 5, and one goal from the mark. Total points, 295.

Our opponents' score was as follows :—

Tries 71, tries converted 28, penalty goals 9, dropped goals 7. Total points 324.

Therefore the complete figures are :—

Played 28, won 14, lost 14, drawn 0. Points for, 295; points against, 324; average points per game (for), 10.54; average points per game (against), 11.54; percentage, 50 per cent.

					Points.		*Per*
Season.	*P.*	*W.*	*L.*	*D.*	*F.*	*A.*	*cent.*
1925-26 ..	29	14	12	3	235	234	53.5
1926-27 ..	34	18	13	3	371	294	57.35
1927-28 ..	26	12	11	3	190	206	52.0
1928-29 ..	30	11	18	1	220	404	38.3
1929-30 ..	28	12	15	1	322	311	44.7
1930-31 ..	28	13	13	2	306	289	50.0
1031-32 ..	28	14	14	0	295	324	50.0

R. C. HOLLOWAY.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.

April, 1932.

M.B.

A. Eckford.

Appointments

H. W. A. Post, M.D., D.M.R.E., Honorary Medical Radiologist, West London Hospital.

V. W. L. Wells, M.R.C.S., L.R.C.P., Anæsthetist, Miller General Hospital.

Change of Address

E. L. Graff, M.B., B.Ch., 105, Eaton Terrace, S.W.1. *Sloane* 8022.

H. C. C. Taylor, M.D., Allerton Mount, Duffield Road, Derby.

Births

WALDIE.—At Barton House Nursing Home, to Jane, wife of Richard William Waldie, L.D.S., R.C.S.(Eng.), 14, Van Mildert Terrace, Stockton, on Friday, April 29th, 1932—a daughter.

WHITLOCK.—On March 13th, 1932, at Bromley, Kent, to Sylvia, wife of Denis Whitlock, F.R.C.S.(Ed.)—a daughter.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLVI — *28th May 1932* — *Number 1144*

PASSIM

SIR JAMES BERRY, in the 157th Annual Oration delivered before the Medical Society of London, criticises, in an address entitled "Fallen Idols," the present-day surgical treatment of appendicitis. He asserts that the modern surgeon operates too frequently in acute cases, and that the mortality would be lower if an expectant policy was more often followed.

In a series of 31 cases which Sir James observed as a house surgeon, and which were treated on medical lines, there was only one death. As most of these cases had "considerable swelling in the iliac fossa," we feel that this cannot be a true representation of the mortality of acute appendicitis in these days. No reference is made to the acute fulminating type which does not reach the stage when there is a palpable mass, and which probably died either before or soon after admission to hospital. Nor does Sir James mention the highly dangerous obstructive type of appendicitis, in which early operation is essential if the patient is to survive. It is in these two classes that the majority of deaths from this disease occur, and in early operation we have the only means by which the present low mortality can be maintained, or even reduced.

We cordially agree, however, on two points which he stresses in his address. The first is that delayed and conservative surgical intervention is the correct policy in cases of abscess formation, and the second is that in all cases the use of purgatives and enemata is to be strictly avoided. But we feel that his rather whole-hearted advocation of medical treatment, and his failure to observe the urgency in many cases, may have grave results. For a considerable time hospital authorities have endeavoured to encourage general practitioners to send up their cases at an early stage, even when the diagnosis is uncertain. It is generally agreed that in really early cases surgical treatment gives the best results, and we feel that any minimisation of the frequent necessity for operation will certainly lead to the needless loss of lives.

SINCE the ban was imposed on students parking their cars in the front quadrangle, the lot of these vehicles has been an unhappy one. The majority of them have to stand in the roads surrounding the College. Here only the fortunate two or three who, by reason of their early arrival, gain the coveted places beneath the College porter's eye, escape the devastating attentions of the Borough children. Those parked in Sparricks Row are undoubtedly considered by the young of the district to be placed there solely for the latter's benefit. They lose no time, therefore, in becoming familiar with the inner workings of each and every car by an exhaustive process of pushing, pulling and twisting every button and knob within their grasp.

Should the owner of a car be so unsporting as to lock it, the ingenuity of youth is in no way thwarted.

The interior not being available the exterior is put to its fullest use. The polished mudguards make magnificent switchbacks, and the coachwork rivals the finest blackboard in the scope it provides for the young artist. It is easy to imagine how great is the havoc caused by the insatiable curiosity of Borough urchins. Great must be the trepidation of the proud owner of a car of a more exclusive species as he leaves it exposed to these destructive visitations.

Were this the only menace to which a student's car is subjected it would be bad enough, but a new and more serious danger has recently arisen. It may well be that in the near future the students' "car park" will be the starting-point of many daring daylight robberies. So many unattended cars are bound to attract motor bandits anxiously seeking a vehicle to borrow for the perpetration of their crimes. For obvious reasons they are unable to return cars thus "borrowed," and therefore abandon them when and where it suits them. An example of this occurred only a few days ago when a car stolen from outside the College was subsequently found in a deserted and battered condition in a neighbouring district.

As there is no available space for the construction of a suitable car-park, the solution of the difficulty would appear to be in the provision of adequate supervision of the cars left unattended in the road. With unemployment as it is in this district, it would not be difficult to enlist the services of a trustworthy person to keep a watchful eye on these cars. An attendant of this nature might well be of riper years, and some slight infirmity would not be a bar to his engagement. In these circumstances a salary of about thirty shillings or two pounds a week might well be considered sufficient. Many farm labourers receive no more than the former sum for a long and strenuous week's work.

With the adoption of such a scheme the difficulty would at once arise as to who would pay this much-needed attendant. Student motorists would, we feel, each be willing to pay a shilling a week for the knowledge that their cars were in safe custody. For the rest they could, we are confident, appeal to the generosity of the College Catering Company. This worthy body would surely be willing to sacrifice a particle of its profits in order to ensure peace of mind of its patrons. Happy in the thought that their cars were under the care of a vigilant servant of the company, the motor-owners would eat more contentedly, more persistently, and withal more heartily. Thus would virtue once more be rewarded and the Catering Company, by reason of its beneficent act, secure an even greater turnover.

THE Sir Charles Hastings Clinical Prize, established by the Council of the British Medical Association for the promotion of systematic observation, research and record in general practice, has been awarded to Leslie George Housden. Dr. Housden is a Guy's man and was a former editor of the *Gazette*, and we should like to offer him our heartiest congratulations on his success.

Uræmia

A Paper read before the Physical Society by A. J. Grace, Esq., B.A. (Sask. and Oxon.).

(*Continued*)

IN the discussion which follows, concerning the pathogenesis of the different types of uræmia, I have decided to abandon the more conventional order of treatment of the subject in favour of a brief consideration of those varieties of lesser interest to us at the commencement. By adopting this procedure it is hoped that a clearer conception of true uræmia may be obtained. It is only upon a basic knowledge of those factors which, although frequently complicating the true uræmic picture, are not indispensable thereto, that it is possible to view this condition in its proper perspective.

THE PATHOGENESIS OF PSEUDO-URÆMIA

Any endeavour at a complete discussion of the ætiological factors productive of pseudo-uræmia would lead far beyond the scope of this paper; it must suffice to indicate a few important points. It has been shown that hypertension and vascular disease lie at the root of the trouble. The hypertension may be essential in nature, *i.e.*, the pure type, or it may be secondary in such conditions as the "toxæmias of pregnancy," in lead poisoning, and in other conditions not excepting the large and important group of chronic nephritis itself. It varies in degree in different instances, and varies in importance from being the major cause of symptoms to being an incident in the course of the primary affection. "The primary pathogenetic factor in all these cases is the cerebral anæmia resulting from arterial contraction, as Volhard himself shows clearly."[30] Much controversy has arisen over the relative importance of vascular spasm and a secondary cerebral œdema. The latter has been more often postulated than actually observed; the view concerning it originated with Rees, but received marked support only after Traube had offered his theoretical explanation for the occurrence of such œdema.[30] He believed that the œdema produced an increased pressure in the closed cranial cavity, with a secondary compression of the cerebral capillaries and veins, and consequent anæmia of the brain. He went so far as to suppose that convulsions or coma could be accounted for according as the maximal incidence of the anæmia fell upon the medulla or cerebrum respectively.[25] Although this theory has fallen into disrepute, it appears that cerebral œdema does play an important part in some cases, but it is undoubtedly of greater moment in connection with convulsive uræmia, under which it will be encountered again. The amount which this condition does towards producing the symptoms of pseudo-uræmia is rather a matter for conjecture in the absence of exact knowledge. The belief in vascular spasm as the chief cause was championed by Volhard and has been elaborated by Elwyn, who mentions observations suggesting some abnor-

mality of vasomotor control in cases of this sort, while stressing visible contractions of the retinal arteries as indicative of similar occurrences in the circulation of the brain. His interpretations, though interesting, are somewhat too speculative to be very convincing.

The only conclusion which appears to be justifiable is that pseudo-uræmic phenomena depend upon cerebral vascular disturbances leading to localised areas of ischæmia; the ætiology unquestionably varies. The exact complaints in a given instance will then depend upon the site, rate of development, degree, and duration of the vascular interference, and the blood pressure and other factors are likely to play a part. In pure form progressive changes of this type are met in elderly persons with the clinical condition known as "chronic cerebral softening." Co-existence of separate secondary effects of the vascular derangements may add to the findings in a particular instance, while the same may be even more true where there is a distinct primary lesion, *e.g.*, chronic glomerulo-nephritis.

THE PATHOGENESIS OF CONVULSIVE URÆMIA

It will be recalled that in this group the manifestations are typically general convulsions or "eclamptic equivalents," depending especially upon affection of the central nervous system. This condition arises most frequently in cases of acute glomerulo-nephritis, but comprises also the "acute or fulminating uræmic attacks" supervening upon an underlying chronic azotæmic nephritis. Among cases of war nephritis convulsive uræmia was relatively quite common, whereas true uræmia was singularly rare.[56] The onset was usually sudden and bore no relation to the apparent gravity of the nephritis; epileptiform seizures were generally both severe and repeated, while other symptoms were variable. The general condition is almost always surprisingly good in spite of violent, recurring convulsions, and in sharp contrast to the common chronic ill-health of severe chronic nephritis leading to true uræmia.

Some impairment of kidney function is often present in cases of this class; nevertheless, demonstrable retention of waste products in the blood is never excessive as in true uræmia, and, indeed, may be negligible. This fact is well brought out by a comparative table in which de Wesselow[20] gives the values of several important blood constituents as found in typical examples of these two varieties of uræmia and also for "mixed" cases, which occur most commonly, he states, in conditions of subacute nephritis. Characteristic differences in the blood pressures are recorded, too. The blood urea seldom exceeds 90 mg. per cent. as a maximum in uncomplicated convulsive cases. Some degree of hydræmic plethora is usual along with some retention of water and salt, and there is usually some œdema, although this may be inconspicuous. The blood pressure of these cases is nearly always raised, often to a figure of 180-200 mm. of mercury, and some workers have believed that a further increment is usually suddenly added immediately preceding an attack. The evidence on this point is not yet complete.

It has been generally accepted that the symptoms of this type are of cerebral origin and the result of vascular changes alone. The small extent and inconstant nature of retention of various bodies has been used to argue against there being any toxic factor. For the moment this may be conceded, although the question of a possible intoxication will be noted again. There is a very considerable body of evidence in favour of cerebral œdema being the dominant factor here. In this connection the theory of Traube has been resurrected, for it can explain everything, the œdema being accounted for on the basis of the raised arterial pressure and the hydræmia; the fact that there is some retention of both salt and water brings it into line with Widal's chloride-retention type of uræmia. Probably Traube's views are not accurate, but there is no doubt that increased intracranial pressure is present and lies at the bottom of the symptomatology. The principal evidence is therapeutic, and may well be epitomised. Any of the recognised methods of reducing the intracranial pressure will not only ward off an impending convulsive seizure, but will rapidly effect recovery from this in any stage. Osman[57] records two cases in coma to each of which 40 c.c. of 30 per cent. saline was given; the effects were dramatic, recoveryof consciousness occurring in approximately three minutes in one, and in seven minutes in the other. Venesection[56] has yielded similar results. Text-book methods of treatment now include lumbar puncture,[65] which shows an increased pressure as well as affording prompt relief, and injection of 1 per cent. magnesium sulphate intravenously. It has been pointed out that this latter solution is hypotonic, and an effect due to the ions has been suggested to explain the definite results obtained.[59] Attacks may be prevented by dehydrating the organism by means of excessive diaphoresis or purgation, while drugs depressing the higher centres diminish the liability to "fits."

The evidence for the existence of cerebral œdema in these cases and a causal relation to the clinical picture is obviously strong. It is believed

that localised cerebral œdemas may develop and account for the variability in the symptomatology; such localisation might be assumed to occur even as obvious superficial œdema occurs in different parts in these cases.

Certain difficulties have arisen in regard to the explanations given. Cerebral œdema is rarely striking on post-mortem examination, even where previous symptoms have indicated that it should be marked. Also, in the œdematous types of nephritis, presenting the grossest retention of water and salt, one would naturally expect to find the most marked cerebral œdema and the most obvious symptoms belonging to this group; yet, as a rule, this is conspicuously not the case. This latter difficulty does not yet appear to have been solved. Some observations of Foster's[34] are relevant to the former. He found that demonstrable œdema of the brain was more often present in cases of true uræmia than of the convulsive type; however, this latter group often showed definite cerebral hyperæmia, while pin-point hæmorrhages were noted in many instances. Where such visible indications of vascular disturbance presents itself it is not difficult to believe that a degree of œdema sufficient to cause ischæmia and symptoms is probably there too. From the known relation of vascular engorgement to transudation of fluid from the capillaries, the evidence in favour of cerebral œdema as an important factor, and the notorious susceptibility of nerve cells to asphyxia and other abnormalities, it is not difficult to accept the facts already presented at their face value, even if gross œdema of the brain is rare.

Let us now turn aside for a moment to consider some striking work of Foster's intimating that there may be a specific toxin causing convulsive uræmia.[32 34] Struck with the possibility that this might be the case, the toxin having a selective action on the nervous system, the fact that no normal constituent of urine satisfied the requirements, and the knowledge that any such toxic body should be recoverable from the blood and tissues of affected cases, he undertook a thorough investigation of this possibility. He noted first that when there is an increase in the non-colloidal nitrogen in the blood in nephritics of various sorts, the proportion of undertermined nitrogenous bodies is regularly increased. He regarded these as catabolic in origin and forerunners of known urinary constituents, and he attached considerable importance to this finding. By dint of most careful manipulations he succeeded in preparing an extract from the blood of cases of convulsive uræmia which yielded very impressive results, suggesting the presence of a toxic body in considerable dilution. The extract from 200 c.c. of such blood from each of seven cases when injected into a guinea-pig proved lethal in every instance; a succession of respiratory, nervous and other symptoms constantly ushered in the fatal issue. Control experiments with extracts from the blood of patients suffering from a variety of pathological conditions, including chronic nephritis, proved these to be uniformly innocuous.

Striking as are these results, they cannot be regarded as conclusive. Foster himself regrets the failure to prepare the pure substance in quantities permitting analysis, and states that its chemical nature must be demonstrated before any certain conclusions will be justified. It seems most unfortunate that the literature of the 17 years which have ensued since Foster's original discovery offers no clue to the chemical composition of this substance; indeed, there is not even confirmation of its existence. Janeway[32] has remarked that the above toxic body presents some similarities to an alkaloid, while the symptoms of convulsive uræmia bear a certain resemblance to the results of poisoning with this class of drugs.

In the present state of knowledge it is clearly impossible to generalise regarding the cause of eclamptic uræmia in every case. As we have seen, the major factor appears to be cerebral œdema in most instances. Regarding the causation of this œdema uncertainty is rife; is it due to the same toxin as the nephritis, or is it secondary to the nephritis, or has it another explanation? These questions are easily raised, but are less easily satisfactorily solved. One wonders if, perhaps, Foster's substance might operate by causing such an œdema in some way. The same note has been struck by Ervin,[26] who suggests that a toxic chemical factor underlies production of the œdema. He advances an original hypothesis to cover the causation of convulsions in several conditions, including eclampsia as well as uræmia; the suggestion is that these violent movements are purposive and directed towards increasing the venous return of the heart and, secondarily, the arterial pressure in cases where the intracranial pressure exceeds that in the arteries, and the brain is suffering from ischæmia. Four cases are described in support of this view.

It may be mentioned that Ambard and Stahl[71] attach special importance to variations in the plasma chloride, believing chlorine to be "epileptogenic." They found abnormally high plasma chloride values in the pre-convulsive period in cases of convulsive uræmia, followed by a sudden fall during the convulsions.

THE PATHOGENESIS OF TRUE URÆMIA

It has been indicated already that certain abnormal conditions arise when the kidneys fail to perform their duties normally. The failure of function may be acute and complete, giving rise to the clinical condition previously described as urinæmia; or it may be partial and progressive, gradually leading to chronic uræmia. In the former case the picture is clear-cut; in the latter it is rarely uncomplicated by the co-existence of other organic changes which have developed as a result of, or along with, the deficiency of kidney activity. Yet the essential unity of the conditions appears to be settled.

For several generations the mind of man has stumbled over the problem of accounting satisfactorily for the development of uræmic phenomena. Intoxication of the tissues generally, and particularly of the nervous system, by retained urinary products, has been the view most commonly upheld. Urea, the extractive that is retained beyond all others, was long the general favourite, but gradually this belief fell into disrepute, and each and every constituent of both urine and blood was at one time or another held in suspicion, as well as the sum total of them all. The confusion was great; the failure to visualise several distinct varieties of uræmia and the multitudinous theories in the air long hopelessly befogged the subject.

In some cases of true uræmia "wet-brain" has been found at autopsy, and some parallel has been suggested with the conditions already discussed. However, there is considerable evidence favouring a systemic intoxication as the fundamental factor in true uræmia. The main points in support of this view may now profitably be set forth. Parenchymatous degenerative changes suggestive of toxic cell destruction have been described in many organs, notably in the liver and myocardium, whilst chromatolysis may be quite marked in the ganglion cells of the central nervous system. Electrocardiographic abnormalities are not infrequently met in persons suffering from true uræmia and strengthen the evidence that toxic influences are acting upon the heart muscle. Various abnormalities of the pulse occur commonly, *e.g.*, pulsus alternans and dropped beats, and there is a liability to sudden cardiac death.[30 58] It seems not unlikely that the non-bacterial inflammatory conditions often seen in chronic uræmic states and in advanced chronic nephritis probably have a toxic origin. Colitis, when present, has been attributed to the effects of vicarious excretion of toxins. In severe cases uræmia sometimes develops along with a sudden, rapid rise of non-protein nitrogen in the blood, and acidosis, notwithstanding that there has been no further diminution of nitrogen excretion in the urine; this has been ascribed in the past to a toxic destruction of proteins, although the view has been recently opposed by Peters and Van Slyke. In summing up these observations we can but say that implication of a toxic factor appears to rest upon a fairly firm foundation. Regarding the nature of such a factor, and as to whether there are several, or only one, we shall shortly seek to ascertain.

Since true uræmia never develops apart from impairment of renal function, the possible results of injury to these organs may be best appreciated after a very brief review of the principal duties that they perform. These functions will be merely touched upon in the broadest sense, without respect to the various theories of renal secretion or any attempt to relate up the performance of certain duties to particular structural elements.

The Functions of the Kidneys

In secreting urine the kidney cells carry on two types of general activity; one is excretory and involves removal from the bloodstream of a variety of substances, the other may well be called a synthetic role. The constituents of urine are, in part, purely waste products of no value in the economy of the organism, and often thought to have a baneful influence if present in any excess. This group comprises especially the various nitrogenous bodies derived from the degradation and metabolism of protein substances in the organism, whether these be exogenous or endogenous in origin; most important of these are, of course, urea, uric acid, creatinine and creatine, although various pigments and other bodies are commonly present in small amounts. The kidneys play a very significant part in "preserving constant the conditions of life in the internal environment" in virtue of their participation in certain other fundamental equilibria. These embrace regulation of the water balance of the body, the osmotic relationships, and the acid-base control.

The kidneys provide the major channel for loss of fluid, which depends secondarily upon many factors; these include certain conditions in the tissues, an important influence by the pituitary gland stressed by Verney,[66] and, above all, the concentrations in the plasma of all the different constituents, not exempting that of water itself, or what Haldane has called the "diffusion pressure" of water. The ability of the kidney to concentrate each of the substances in urine, Ambard's limiting concentration, is also important. In that the kidneys offer the main outlet for all inorganic

constituents of the plasma, as well as for the several organic substances mentioned above, and normally remove each in excess of its particular individual threshold, their importance is great relative to the role of each specific constituent of the plasma even as in relation to the total osmotic pressure thereof. Being impermeable to the colloidal constituents of the plasma, and treating every substance as a separate entity (although certain inter-relations do hold good), these organs clearly play a unique part in maintaining the optimum conditions of ionic composition of the blood and tissue fluids, and thus exert a direct influence upon the nutrition and health of the tissue cells. Not less important is the function of the kidney in connection with the maintenance of a normal hydrogen ion concentration in the blood and tissue fluids; normally it extensively eliminates non-volatile acid radicles, and this activity varies in harmony with the other mechanisms and in keeping with any tendency towards an altered pH of the blood.

Although constituting less obvious activities of the normal kidney certain synthetic functions are noteworthy. Ammonia production, localised here by the work of Nash and Benedict,[54] plays a normal part in the excretion of acid-radicles, permitting a conservation of fixed base, while assisting in the regulation of the reaction of the blood. In conditions of acidosis this function often assumes an exaggerated importance. The synthesis of hippuric acid has been shown by Bunge and Schmiedeberg[49] to be performed by the renal cells, at any rate in dogs; this implies a local protective function whereby the toxic residues derived from oxidation of phenyl-fatty acids are masked by conjugation with glycine. Behre and Benedict[49] advance evidence for the possible renal formation of creatinine. A considerable weight of evidence has been amassed in favour of a complex role related to organic phosphorus compounds in the organism; thus Eicholtz, Robison and Brull[23] offer experimental support for the view that hydrolysis of these compounds takes place in the kidney cells prior to the excretion of the phosphorus as inorganic phosphates; furthermore, the researches of Kay[44] on the normal presence of "phosphatase" in the kidney in amounts approximately proportional to the functional activity of the organ under various conditions, and the probable effects of this enzyme, are of much interest. Finally, Neuberg[55] adduces certain evidence for the existence of a kidney "sulphatase" which plays a part in disposing of organic sulphate-containing molecules. Other suggested functions have little basis in fact, *e.g.*, a hypothetical internal secretion; such speculations cannot be discussed here.

A moment's reflection upon the multiplicity and complexity of the duties fulfilled by the kidney amaze one at its normal marvellous efficiency. Small wonder, indeed, that any derangement affecting primarily one or all of these functions should produce an intricate picture confused by a varied assortment of secondary results—some produced directly, others compensatory in character, and still others in which any connection is almost impossible to trace. Few, if any, of these activities are really independent of each other, and disturbance of one constantly affects others; thus inability to excrete some radicle will lead to accumulation of this in the blood and tissues, with some re-arrangement of the normal electrolyte pattern perhaps, and probably a corresponding retention of water, and possibly some disturbance of the acid-base balance if the radicle be such as to affect this. No doubt this perplexing inter-relation of functions is really due to the arbitrary manner in which we are accustomed to pigeon-hole our ideas concerning renal activity; the kidney, unfamiliar with our artificial separation of its duties into suitable fractions, placidly follows the dictates of imperfectly known intrinsic factors.

It will be clear that the number of possible explanations intended to account for the phenomena of true uræmia even on the basis of known or postulated physiological findings can be infinite. That this is indeed the case has been made clear already. The suggestion of some perversion of function is needless. To discuss all the possibilities would be as futile as it is impracticable. Therefore, our attention will be centred upon certain aspects in regard to which some positive evidence is available.

The Part Played by Retained Excretory Products

It has been shown that some degree of retention of nitrogenous and other bodies is a constant feature of true uræmia, or just uræmia as it will be called henceforward in this paper. The evidence previously summarised in regard to uræmia being an intoxication, and the known fact that poisons of the toxin class are constantly nitrogen-containing substances, has long supported the suspicion with which the accumulated nitrogenous substances have been viewed. That retention of urea takes place in the blood in conditions of renal damage has been realised since the observations of Bright and his contemporaries on this point. They believed in a causal relation between this and various symptoms that might supervene. Since it was known that other catabolites than the

nitrogenous substances could be eliminated by other channels than the urine, and that the only really constant post-mortem findings in cases of chronic uræmia were the signs of injury in the kidneys, the belief was long very strong that here was the source of trouble. These views opened up a number of possibilities, which have been pursued. Urea, containing at least one-half of the retained nitrogen, and often a considerably larger proportion than this, has been most studied, for its values are very much the most extreme for any one retained substance. The main facts in connection with the possible importance of urea will be considered at once.

Urea

That urea was believed to be the leading factor in producing the phenomena of uræmia long before refined methods of biochemical analysis became known has been stated above. It is now evident that in uræmia the non-protein nitrogen is increased from the normal figures of 20-40 mg. per cent. to values often ten or more times this. The exact proportion of this in the form of urea varies in different cases, but it is rarely under 50 per cent., and may be as much as 90 per cent. In chronic uræmia the blood urea level at the time of onset of symptoms is variable, but it is nearly always over 150 mg. per cent. The values in urinæmia are usually higher, and often exceed 300 mg. in 100 c.c. of blood. This degree of variability between the blood urea figures and the commencement of uræmia is strong presumptive evidence that the chief pathogenic factor must be sought elsewhere; this conclusion is strengthened by the occurrence of cases in which the blood urea is scarcely, if at all, above normal, and yet clinical uræmia develops; still other cases have extreme urea retention, and fail to show the expected symptoms. No doubt individual susceptibility varies and may help in small part to account for the discrepancies. Although urea cannot be the most important factor, nonetheless there is a large weight of evidence that it probably plays a real part in many instances. The most striking and more recent results bearing on this point will now be indicated.

Experiments on Animals

(*a*) Herter and Wakeman[41] produced anuria in dogs by double nephrectomy or bilateral ureteral ligation and noted an exact parallel with urinæmia in man, not only in the clinical results, but also in the blood urea values. These were commonly about eight times normal when uræmia supervened. Post-mortem analysis of the tissues showed values approaching that in the blood for urea, the highest figures, about nine times normal, being obtained for liver tissue and brain.

(*b*) Herter[40] performed a series of experiments on dogs, rabbits and monkeys. He used various strengths of urea solution, different rates of infusion, and several routes of parenteral administration, but obtained fairly uniform results. In all cases death occurred when a total amount of urea equal to about 1 per cent. of the body weight had been given, and in each this followed a succession of symptoms seemingly identical with asthenic uræmia, However, conclusions from these results must be drawn with caution. In many instances convulsive movements were noted, while in others similar results were obtained when certain salts and other substances were used in strong solution.

Herter divided up cases of human chronic azotæmic nephritis on a basis of the blood urea figures, but his most important conclusion was to the effect that the gravity of the prognosis and likelihood of onset of uræmia were more or less proportional to these values. Yet he credited urea with some ætiological importance in uræmia, stressing in this connection the one and only fairly constant autopsy finding in his cases of experimental uræmia, viz., severe hyperæmia of the mucous membrane of the intestines; it is to be recollected that this same observation is not infrequently made in fatal human uræmia, being the only common lesion in these apart from that of the kidneys. It is of interest to note in passing that Herter drew attention to differences between different cases of what he regarded as uræmia as implying certain types; in this he foreshadowed later classifications.

(*c*) Marshall and Davis[48] corroborated Herter in regard to the relation of total dosage of urea to the occurrence of symptoms and, finally, death. A careful comparison of the urea content of the tissues before and after administration of urea solution showed the concentration in the tissues generally to be only slightly less than that of the blood, with certain exceptions where the concentration was much lower, notably adipose tissue, integument and skeletal structures. Their most interesting discovery concerned the rate at which urea left the blood and passed into the tissues; in three minutes after intravenous infusion of urea it was found that over 90 per cent. had vanished from the blood. However, it could all be accounted for in the tissues, and there was no evidence whatsoever for any interchange into any other substance having taken place.

Investigating the tissues of patients who had died with chronic azotæmic nephritis, they found that here also was there a parallel urea concen-

tration in the tissues to that of the blood. Calculations showed that in complete suppression of urine a period of five to six days would normally be required for the blood urea to rise to 200 mg. per cent., a figure quite in keeping with the observed facts. They conclude that the ready diffusibility of urea will prevent it exerting any degree of osmotic pressure in relation to the cell membranes in the tissues, and believe that it is truly toxic only when present in very considerable quantities, but yet that it may contribute to the symptomatology even when present in smaller quantities.

(*d*) Leiter,[45] in a series of experiments on dogs, confirms the general conclusions already reached by previous workers. Infusion of urea at a constant rate of 2 grams per minute led to an imposing collection of symptoms, which are described in the order of appearance. Post-mortem, little was found except for the changes in the gut wall noted by Herter, and these were constant. Re-purified urea yielded identical results to those given with ordinary preparations regarding total quantities used, symptoms observed, urea concentrations in the blood, urine, bile and gastric juice, and in the findings at autopsy. In these cases also convulsions were of frequent occurrence, and Leiter thought that these results supplied the clue to the causation of convulsive uræmia, but that where an asthenic condition was marked, as in cases of anuria, another factor is responsible. The phraseology "severe general metabolic disturbances" applied by him to this other factor is not altogether very enlightening.

(*e*) Streicher,[64] giving a slow and prolonged urea infusion into dogs, also produced a uræmia-like condition with the typical "Kussmaul picture"; he noted here all the clinical features of uræmia. He attempted to account for the phenomena on the basis of a disturbance in the mineral salt balance, having noted a marked fall in the K : Ca ratio.

(*f*) Some experiments by Andrews,[3] although of a rather different nature, may be recorded here. He found that suppression of urine formation was readily produced by a condition of acidosis which could be caused in a variety of ways. Injection of hypertonic saline into an animal with anuria produced by this method reproduced the clinical picture of uræmic coma most faithfully, *i.e.*, the "Kussmaul picture." The chief factors involved were apparently disturbances of the acid-base and mineral-salt equilibria. He points out that the greatest affinity for chloride was found in the liver and brain. Having noted with striking constancy areas of cellular degeneration in the liver, he proceeds to advance a view which is not a little startling for its novelty. He postulates that from these damaged cells there may arise toxic substances which enter the bloodstream and are the real pathogenetic factors underlying uræmia; furthermore, he believes that proteins from these injured cells reach the kidneys and are treated as foreign proteins—hence the source of albuminuria in these cases, for the kidneys would then be acting normally in this respect instead of either excreting their own protein material or having become abnormally permeable to those of the serum.

It will have been asked why has this seemingly irrelevant information been interpolated here. My reply is that the clue lies in the work of Streicher. As a result of gradual and progressive infusion of urea into animals he produced an identical clinical picture to that obtained in the above cases, and he also stressed the importance in this connection of disturbance of the electrolyte pattern in the blood along with acidosis. He believes that under these conditions the effect of the excessive urea is to alter the state of osmotic equilibrium of the tissue cells, this secondarily altering the permeability of the cell membranes which allow abnormal nitrogenous bodies to escape into the circulation. In this connection the finding of albumose in the blood of a nephritic with uræmia by Schumm,[68] suggesting an active autolytic process, seems worthy of note. Streicher mentions that immunological tests on two of his cases showed that the urine reacted in high dilution to liver proteins. In these animals histological changes in the liver cells were later found to be slight.

Any final conclusion upon this work must await further observations. It would appear that the view is perhaps not as fantastic as one would at first imagine. It has the virtue of opening up fresh possibilities for explaining the toxicity of urea along other lines than that of any direct toxic action. A point of interest suggests itself in that other conditions in which liver damage is a marked feature, particularly eclampsia, may be of a more involved nature than is yet suspected.

(*g*) A group of experiments of still a different nature deserves notice here. Alpers[1] sought to investigate the effects, if any, of urea administration upon the histological characteristics of the cells comprising nervous tissues. Rabbits were used, and the injections consisted of 1-2 gm. of urea daily up to a total of about 50 gm. Although certain uræmic symptoms were observed there is no record of the blood urea values. Examination of the nervous tissues at different intervals of time showed certain histological changes, most marked in the various neuroglial cells, but not entirely sparing the nerve cells. Another series of cases in which injections of human urine were used

showed more marked changes of the same kind. Unfortunately, no control experiments appear to have been carried out.

Alpers emphasises a speculative view attaching considerable importance to the neuroglial cells. It is supposed that these cells constitute " an interstitial gland annexed to the nervous system." The only evidence for this theory seems to be the demonstration of various granules in the neuroglial cells. The functions attributed to this " gland " include the following: a nutritive function related to endogenous nerve metabolism, endocrine activities affecting other systems, and a role in neutralising toxins in the bloodstream and thereby protecting the vital nervous elements. If this view should ever be placed on a basis any more solid than hypothesis, then will be time enough to face the endless avenue of possibilities that would be opened up. It does offer one attractive feature which may be mentioned. Similar changes to those reported by Alpers have been described in the neuroglial cells in certain other conditions, *e.g.*, generalised infections and meningitis (del Rio Hortega). Perhaps it will eventually be discovered that many features common to uræmia and to a host of other pathological and even " functional " states really depend upon some single factor common to all. If this should arise, an explanation along the lines just set forth is not beyond the pale of possibility.

The fact that nervous tissues take up large quantities of urea is, perhaps, worth mentioning once more. This was shown by analysis in experimental cases and in chronic azotæmic nephritics, whilst Oestreicher, quoted by Boyd,[11] has demonstrated that of uræmic tissues the cerebral cortex and medulla are outstandingly supplied with urea. It is obvious that this substance would have ample opportunity to act upon the cells of the central nervous tissues in such cases.

Experiments on Man

Dissatisfied with the inconclusive nature of most experiments carried out upon animals, and the fact that these failed to afford any information regarding the early stages, Hewlett, Gilbert and Wickett[43] tried out the effects of urea administration upon themselves. Large doses of about 100 gm. were taken to allow for speedy loss to the tissues, for they wished to raise the blood urea value. Symptoms corresponding to those of asthenic uræmia were described in every case. From periodical estimations of the blood urea, observation of the degree of diuresis, and calculation of Ambard's constant, they were able to arrive at the approximate figures for the blood urea corresponding to the onset and cessation of symptoms in each instance. Symptoms were almost invariably present whenever the above value exceeded 150 mg. per cent., appearing at this point and persisting as long as such a figure lasted. They thought that any effects due to sudden entrance of urea into the circulation were excluded. Their conclusion attaches considerable significance to urea in the pathogenesis of true uræmia.

Discussion of Part Played by Urea

So much for the evidence implying a possible pathogenic relation of urea to uræmia. That urea cannot have any great degree of direct toxicity has already been made clear, while further support is available in that extreme figures are normally met in certain animals, *e.g.*, elasmobranchs have a blood urea of about 800 mg. and a non-protein nitrogen figure of approximately 1,000 mg. per cent.[17] It has been shown that clinical uræmia bears no simple and straightforward relation to urea concentration in the blood and tissues, cases having been recorded from time to time in which the blood urea has been within the range of normality. It may be added here that, in spite of some considerable search through the available literature, I have been unable to verify the occurrence of a single instance in which unquestionably true uræmia has developed apart from the retention of urea and other substances to some appreciable degree at some stage; that these cases do not occur is further than I am prepared to affirm. Frequent allusions to them in the recent writings on the subject implies a basis in fact; one is then at liberty to ask if the diagnosis is not open to question, for urea retention is one of the most dependable indices of advanced renal impairment of such a degree as one is wont to associate with the development of the phenomena characterising true uræmia. Of course, the influence of extraneous factors, of which diet is singularly important, can do much towards masking the true state of affairs, and this serves as a warning that complete reliance cannot be placed in isolated blood urea estimations alone either as a ground for diagnosis or prognosis.

It was remarked earlier that not only do uræmic symptoms arise in the presence of relatively low values for retained products, but also such phenomena may fail to appear even when considerable degrees of retention have occurred. In this connection an experiment by Bollman and Mann has been cited.[60] Both ureters of a dog were implanted into the intestines, from which there was a continuous reabsorption of the urine nitrogen; chronic increases of blood urea nitrogen exceeding 300 mg. per cent. resulted, without the appearance of any symptoms of intoxication. Peters reports a

case of chronic pyloric stenosis with a blood non-protein nitrogen of 292 mg. per cent. in which no uræmia symptoms were evident. Similar cases where there has been prolonged diarrhœa are noted. These observations show that these cases, although possessing unduly high concentrations of nitrogenous bodies in the blood, do not fit into any group in the classification of uræmia, for the essential features are entirely lacking, viz., symptoms. Without these, no matter how excessive the nitrogenous retention or how severe a chronic nephritis may be, it is not uræmia.

Exactly what the relation of urea to the pathogenesis of uræmia is cannot be demonstrated yet. Probably the most likely explanation is that it is only one of several factors that combine in producing the clinical picture. Fearon[27] summed up the toxicity of urea as due to its osmotic effect in concentrated solutions. Probably it does exert some such effect even in weaker concentrations, notwithstanding its great diffusibility, but a separation of any influence of this sort from other effects such as an influence upon the mineral salt balance of the blood, and an association with acidosis, does not seem possible at the present time. Just what the effect of these complex disturbances may be upon intracellular and other metabolic processes is a matter for conjecture (and for much further research).

(To be concluded)

The Care of the Eyes of Industrial Workers

By Mr. M. Shaw, Ophthalmic Registrar

Before the Industrial Section of the Royal Institute of Public Health Congress

MR. CHAIRMAN, LADIES and GENTLEMEN,—It is hardly necessary for me to say with what appreciation and pleasure, not unaccompanied by embarrassment, I accepted the courteous invitation to speak before the Industrial Section of the Congress. I have taken as the subject of my address "The Care of the Eyes of Industrial Workers," and it is one which I hope will prove both interesting and stimulating. The time at my disposal militates against giving you a detailed survey in the furtherance of my thesis, but it will be my endeavour to give some account of its salient features.

The term "industrial worker" is sufficiently indeterminate to bring within the scope of this paper every class of person whose livelihood and efficiency depends upon the preservation of a high standard of visual acuity and does not limit me to a consideration only of those employed in the vast productive occupations.

It is commonplace that the social conscience of to-day is considerably more sensitive than that of fifty years ago, and the development of industrial welfare and public health administration must be ascribed, in part at least, to this factor. Economic considerations are, however, the proximate cause of the increased interest which the large-scale employer exhibits in the social well-being of his staff. Conditions of labour in the last century were such that an employer was involved in practically no loss in consequence of imposing a degree of physical strain which impaired the earning capacity of the employee, since replacement could be effected quickly and inexpensively. The advent of machinery has nowadays made it necessary to provide a highly disciplined labour team any change in the personnel of which must, undoubtedly, effect a loss to the employer. It follows that one of the primary functions of industrial administration is to maintain a permanent labour force with a high and constant standard of efficiency, in order that production may be as economic as possible. This is especially important where the particular form of labour imposes strain upon the visual structures.

All advances in the practice of medicine tend towards the deference of active curative measures to those of prophylaxis, and of the special branches of the art, ophthalmology occupies a prominent place in this advance of therapeutics. Herein lies the gist of my subject, the demonstration of prophylactic measures and commonsense principles of visual hygiene. The neglect to observe already generally accepted dicta appertaining to the care of the eyes has frequently manifested itself in consulting and hospital practice, occasioning both surprise and concern; however, through the media of the general practitioner, the public health services and improvement in the general standard of education, there is a definite diminution in the incidence of such self-neglect.

It is of course axiomatic that a maximum standard of visual efficiency can only be attained if due care be continuously given from childhood, but the present problem is the maintenance and, where possible, the improvement of the ocular condition of the industrial worker from the time he falls within the purview of scientifically applied welfare treatment made possible through highly organised industrial administration.

To keep in mind the dictum, " The eye is not in the body, but is of the body," helps one to maintain the proper perspective in ophthalmic therapeutics, since a rational line of treatment of eye disease can only be evolved from a comprehension of general pathology. The attachment of a medical staff to industrial establishments employing numbers of people is a project indicating wise organisation, and it is readily accepted that with the advent of maintained and improved general health of the individual, the incidence of serious eye disorder has, during the past two decades, definitely diminished. Cataract, which is shown by available evidence to be due to general constitutional cause in the vast majority of cases, may be taken as an example of this. The promulgation of the doctrine of disease prevention by the medical staffs of industrial concerns is one of their primary functions, and I find that it is invariably their practice to encourage immediate consultation although the trouble be slight. Such work must possess inestimable value. Furthermore, the methods which now obtain of arriving at an early diagnosis of general constitutional disorder, improved technique in treatment, and the hygienic conditions existing which help expedite and maintain a patient's recovery are all factors full of import in lessening the frequency of eye pathology. I may instance diabetes mellitus, congenital and acquired venereal disease, diseases of the cardio-vascular and nervous systems, and nephritis as examples, for these diseases, particularly if neglected in the early stages, may later result in grave impairment of vision.

Equally important strides have been made in ophthalmology. A new era has been opened by the introduction of slit-lamp microscopy of the living eye, for many incipient changes are demonstrable earliest by the application of this method of investigation.

We are, therefore, in the fortunate position of having at our disposal diverse facilities which enable us by proper supervision of health and by accessory instrumentation, to initiate early the treatment of the general disturbance which would, if left, lead to a lowered visual acuity.

The most common eye disorder which brings patients for consultation is eye-strain, by which one understands that there exists a complexity of symptoms characterised by dimness of vision for close or distant objects, sometimes both, discomfort or pain in the eyes, and, in addition, there are sometimes attacks of vertigo. The time of the occurrence of the head pain will often establish a connection between it and ocular exhaustion. Thus a morning headache may be induced by the prolonged use of the eyes the previous evening, or headache may arise in the evening after some hours at the desk. I have been impressed by the frequency with which these symptoms are complained of by young men and women who have, within a short time of consultation, commenced the wage-earning stage of their career. The ætiology of such symptoms falls into two groups. In the first group we recognise that the changed conditions of the patients' existences, exemplified by the longer hours of physical and mental application, frequently spent wholly in artificial illumination, the change from an outdoor to a sedentary occupation, assumption of responsibilities and the anxiety to maintain or improve their wage-earning capacity, are all influences which may accentuate the symptoms of an error of refraction previously obliterated by the corrective influences of a less artificial mode of life. In the second group there has been no pre-existing refractive defect, but the power of accommodation as the result of this additional stress has become atonic, or sometimes spasm of the ciliary muscle ensues after close work. Clearly, for the first group lenses must be prescribed for the correction of the abnormality and the patient warned of the consequences of neglecting to seek periodic examination until the abnormality in the refractive system has been fully compensated. The treatment of the second group is much simpler, and usually it is found that with the minimising of eye-work and attention to general health, the ocular symptoms soon disappear. Occasionally convex lenses for the relief of the temporary accommodative dysfunction are required. It may therefore be thought expedient that, with this type of worker, if an element of doubt exists as to visual efficiency, the opinion of an ophthalmic surgeon should be sought early and any defects so discovered corrected. This will enable the individual to enter upon a career on equal terms with his fellows, and so fit him, as far as sight is concerned, for the competition he must encounter.

I have now to consider the question of artificial lighting, since if this be ill-adapted or inadequate to the specific requirements of those working in the area illuminated will inevitably produce symptoms of eye-strain. Man is the product of outdoor environment. We should realise we have not lived indoors long enough to alter fundamentally our eyes, evolved under certain outdoor distributions of light and brightness and under certain intensities of illumination. When natural lighting is absent every effort should be made to ensure that it be approximated by artificial lighting. Until a few years ago producers and distributors of light, like crabs, approached their objective backwards, for millions were spent without

thinking of what was needed by the consumer—the eye. In the past, lighting systems were not considered apart from utilitarian, structural or architectural considerations. Fortunately, these conditions have changed for the better, and continue to do so almost daily.

The fundamental principles underlying artificial illumination are that it must give a steady, unflickering light of adequate intensity, but with complete absence of glare, and that there be proper disposition of light with regard to the eye of the observer and the object. Also, the illuminated room must be pleasing in appearance and appeal to the æsthetic sense. There can be no standardised arrangements of lights to give the best effects, because every area and every use to which an area is put makes different demands.

Proper illumination, both natural and artificial, has a distinct commercial value on the output of work. Placed under the most suitable conditions of illumination, the employer will find that his workers show far less tendency to ocular fatigue, with a concurrent increased rate of output, and, furthermore, a higher standard of general efficiency will exist than when a less favourable illuminating state obtains. I am convinced that to seek the opinion of the ophthalmic surgeon in conjunction with that of the illuminating engineer when the lighting of an industry is considered must prove a step of tremendous value to the judicious employer.

Injuries to the eye are, unfortunately, very common. Notwithstanding the anatomical protection afforded the eye by the bony orbital margin and the eyelids, its position is exposed and the eye thus liable to serious accident. Of all cases of blindness 16 per cent. are consequent upon external injury. The nature of eye injuries is manifold, but the commonest lesion occurring in the course of employment is that resulting from a foreign body becoming embedded in the cornea. Frequently this accident is due to sheer carelessness and a willingness on the part of the employee to take unnecessary risks. Flying fragments may strike the eyes of those working upon abrasive wheels such as buffing and grinding wheels, or in the chipping or cutting of metal and in the use of burred tools. In sand blasting or in spraying operations there is a similar risk. The one great protective measure against such an injury is the wearing of goggles, and yet it is surprising how loath workers are to adopt this simple measure. They complain of the weight of goggles upon the face, and sometimes fear that, should an accident occur, the glass front will be driven into the eye. In one factory I investigated the histories of goggles damaged as the result of accident, and in every case the goggles performed their function—the eyes of the wearer were saved.

Tinted goggles should be worn by those employed in occupations where the eyes are exposed to the heat and harmful ultra-violet rays emanating from molten or superheated metals. Otherwise conjunctivitis, superficial keratitis and cataract may be causes of physical disablement directly consequent upon neglect to take this simple precautionary measure, the usefulness and effectiveness of which has now been proven beyond gainsay.

To prevent, or at least to minimise the danger of ocular injuries we must first inculcate in those exposed to these risks lessons of heed and caution, and undertake educational campaigns dealing with the care of the eyes. It is incumbent upon the employer to possess every form of safety device which is adapted to his industry. A first-aid service should exist, and I am adamant that in cases of eye injury its endeavours should be limited to the application of an eye bandage and immediately seeking medical aid for the sufferer, whilst fellow-workmen should be absolutely prohibited from offering any aid whatsoever. I have seen too frequently the dire consequences of unskilled attempts to remove foreign bodies from the cornea produced by the unfortunate workman's colleagues. Large corneal abrasions, corneal ulceration and intra-ocular infection have resulted from crude manœuvring by well-meaning lay individuals attempting that which should only be carried out by the skilled medical practitioner.

I fully realise the shortcomings of my paper, and that the subject has not been dealt with in a complete manner. However, I am sure you are very sensible of the fact that nought but a survey of the subject could be given you in a short space of time. In brief recapitulation I will enumerate the salient features :—

Employers can play a tremendous part in improving the health of the community. The health of those engaged in industrial pursuits can be profoundly affected by the physical and mental environment in the factory or workshop.

A maintained state of health usually means preservation of the visual faculties.

Workers complaining of, or exhibiting eye-strain should be educated to seek early consultation, especially if they have recently commenced the wage-earning stage of their career.

Proper illumination in industry has an important economic value.

Eye injuries should always be referred to an ophthalmic surgeon with as little delay as possible. This is a wise measure which will benefit both employer and employee.

Guy's Hospital Past and Present Nurses' League

THE 32nd Annual Meeting and the 24th Annual Dinner took place in the Nurses' Home on Friday, May 6th. Past members came from far and near. It truly seemed a record meeting—such an animated gathering in the Entrance Hall, many expected meetings and many joyful surprises. About 300 members sat down to an excellent dinner, the lounge in the Revelstoke Department again being used for the overflow. We were delighted to see at the Matron's table our President, Mabel Lady Bonsor, Dame Sarah Swift, Miss Hogg, and among others—members of the Council—Mr. and Mrs. Eason, Mrs. Fagge and Mrs. Hughes.

After dinner everyone adjourned to the Massage Department, where the Annual Meeting was held.

The Matron opened the meeting by welcoming all members. The President, Lady Bonsor, introduced Miss Gladys White, R.R.C., Matron of the Royal Surrey County Hospital, Guildford, and invited her to take the Chair.

The Minutes of the last Annual Meeting were taken as read and signed.

The Hon. Secretary, the Matron, then gave the report on the year's work as follows :—

Between 70 and 80 Associate Members have been transferred to the Past Members' Section of the Nurses' League during the year.

Sisters and nurses have spent 120 " week-ends, days and nights off," at the Cottage, and over 1,100 short visits have also been paid. 15 Past Members have stayed at the Cottage for short periods during the year.

1,103 volumes have been taken out of the Nurses' Library during the year. 38 new books have been added to the Fiction Library through a grant of £5 from the Nurses' League, and Major Ian Hay-Beith (Ian Hay) presented 12 autographed copies of his books to the Library. 29 Medical Books have also been added to the Library through fine money collected during the year.

As the Ladies' Association Garden Fete was held at the hospital this year, no Re-Union Garden Party was given at the Nurses' Cottage. A room in the Nurses' Home was set apart as a meeting place for League Members, and many members availed themselves of this opportunity to meet their old friends.

The Nurses' Tennis Club has had an unfortunate year, the weather being greatly to blame as matches had to be postponed or abandoned altogether. In the Inter-Hospital Tennis Cup Competition, Guy's lost their match in the first round against the London Hospital; St. Thomas's Hospital finally met and defeated the London Hospital in the Final Round for the Cup. The Annual Mixed Tennis Tournament had to be abandoned on account of the courts being under water.

The Fagge Cup Competition attracted between 50 and 60 players. The Final was played at the Cottage on October 2nd, the combatants being Nurse Reed and Nurse McEwan. The Cup was won by Nurse Reed. Mrs. Fagge presented the Cup to the winner, and she also presented a silver cup to Sister Johnson as a memento of her past prowess in having won the Fagge Cup three times in succession.

Friendly matches were also played during the season against the Administrative Staff, the Middlesex Hospital, Queen Mary's Hospital, Carshalton, and the Sisters *versus* the Nurses.

The Nurses' Swimming Club Team were not successful in winning the Challenge Cup at the Inter-Hospital Swimming Gala, but Sister Eurich won the Cup for Diving.

On October 26th we had a very enjoyable Swimming Gala in the Swimming Bath in the Nurses' Home, when the Team Race for style and speed took place for Miss Hogg's Cup. The Cup was again won by the Massage Team for the fourth time in succession. Five nurses competed for Lady Fripp's Cup, which was won by Nurse E. M. Lloyd. During the evening, Miss Ivy Clifford, Breast Stroke Champion of the Southern Counties, and the Misses Fripp gave swimming exhibitions, which were much enjoyed.

The Debating Society held three very successful debates this year. The subjects of discussion were :—

1. " A Jack of all Trades is better than a Master of One."
2. " The World does not Progress ; it merely Changes."
3. " In the Interests of the Progress of the Country, the Cinema should be discouraged."

These subjects gave rise to much discussion, and the motion in each case was lost.

The Exhibitions of Needlework and Photographs, Paintings and Sketches are on view in the various rooms.

The Art Section has made tremendous strides this year, and Mrs. Hughes, who kindly judged this Section, was very pleased with the great improvement shown.

The Photographic Section is not so well represented as usual, and we are sure the many wet week-ends and rainy days during the holiday season have prevented many from using their

cameras. The photographs on view are, however, of a very high standard.

The Needlework Exhibition shows a very high standard of work. The class for plain Needlework is rather on the decrease; Wool Embroidery has, on the other hand, gained in popularity; the Dressmaking Class is poorly represented, but the work shown is very good. In the Washed Section, Embroidery takes the lead. Mrs. Burgwin was very pleased with the work shown, and hopes that another year some Patching and Darning will be shown.

I am pleased to say that the piece of land adjoining the lower end of the grounds of the Nurses' Cottage at Honor Oak Park has been purchased by the Governors of the hospital, and that they have leased it to the Trustees of the Guy's Hospital Nurses' League concurrently and on similar terms with the lease of February, 1924, *i.e.*, 999 years at an annual rent of £10. The whole of the property, about 2¼ acres, is now vested in the Trustees of the League, practically as a freehold, subject to an annual charge of £40.

The Equipment Fund of the Revelstoke Memorial Library and Practical Class Room for Nurses has now been closed. The total amount collected was £149 2*s*. 2*d*. A sum of £51 6*s*. 6*d*. has been spent on medical books, bones, rugs and pottery, and we are now purchasing an epidiascope.

The memorial to Sir Cosmo Bonsor is to take the form of a Scholarship Fund to provide Post-Graduate Training for Guy's Nurses. It is hoped to raise a sum of £2,000, which invested should bring in a sum of £100 per annum. A beginning has been made, and we have received to date a sum of £105; £76 of this amount came as the proceeds of three concerts and a Greek play given by the nurses last month in the Physiological Theatre.

Since our last meeting I regret to announce the deaths of eight Past Members of the League and one Associate Member.

Mrs. Mattock (née Colston), who died suddenly at Shustoke, Birmingham, on May 9th, 1931. Mrs. Mattock entered Guy's in January, 1909, and on completion of her training in December, 1912, held various appointments as Sister and Matron of the Shustoke School. She held the posts of Staff Nurse and Sister in the Q.A.I.M.N.S. in France, and was awarded the R.R.C. (Second Class) for her services.

Mrs. A. R. Felton, wife of Dr. Felton (Medical Officer of Health), who died after an illness of six weeks at Victoria, British Columbia, on May 10th, 1931. Mrs. Felton entered Guy's as a probationer in September, 1898, and on completion of her training held the appointments of Sister in Charge of the Isolation Ward, Sister in Charge of the Wardmaids, and Sister of Lazarus Ward until May, 1905, when she left to be married. Some of you here to-night who were members of the Nurses' Choral Society in those days will remember how hard she worked as Sisters' Representative of the Society.

Mrs. Evelyn M. L. Dixon (née Sladen), who died at Church Stretton after an operation on July 17th, 1931. Mrs. Dixon entered Guy's as a probationer in July, 1907, and on completion of her training joined the Q.V.J.I. for Nurses. From 1913 until her marriage she held the post of Superintendent of the Taunton District Nurses' Association.

Mrs. Constance E. Davis (née Cook), who died at Reading on November 9th, 1931, from tuberculosis. Mrs. Davis entered Guy's as a probationer in November, 1922, and on completion of her training took up private nursing.

Miss K. J. Cadell, who died on November 12th, 1931. Miss Cadell entered Guy's as a paying probationer in September, 1903, and left on completion of her three years' training in October, 1906. During the European War, Miss Cadell was on the staff of the Anglo-Ethiopian Hospital, France; St. John's Ambulance Brigade Hospital, Etaples, France; and was a member of the A.P.M.M. Corps, Edinburgh War Hospital.

Miss K. Gossage, who died at Johannesburg, South Africa, some time last year. Miss Gossage entered Guy's in March, 1887, and on completion of her training joined the staff of the Guy's Private Nurses' Institute. In 1899 she went out to South Africa and held Sister's and Matron's appointments in the Transvaal. Since 1919 she had been on the staff of the King George Street Nurses' Co-operation, Johannesburg.

Mrs. Annie Ardagh Thompson, who died at Folkestone on March 9th, 1932. Mrs. Thompson entered Guy's as a paying probationer in October, 1898, and left on completion of one year's training, after which she did District and Private Nursing for several years.

Mrs. Helen Turner, O.B.E., who died at her home in Wimpole Street on March 21st, 1932. Mrs. Turner entered Guy's as a probationer in 1896, and on completion of her training was appointed Sister of Cornelius Ward and afterwards Sister of Bright Ward, which post she held for seven years. In 1906 she went out to a surgical hospital at Nimes, France, with her friend, Miss Davidson. From 1915 to 1919, Mrs. Turner acted as Hon. Matron-in-Chief of the British Red Cross Society's Central Workrooms at Burlington House, where she directed the activities of a large number of workers of all ages and capacities with

great success. For her services Mrs. Turner was made an Officer of the Order of the British Empire. In 1919, Mrs. Turner became the Hon. Secretary of the Guy's Hospital Ladies' Association, and for nine years carried on and developed the work of the Association with untiring enthusiasm.

Miss Elsa Bache, who died in Martha Ward on April 11th, 1932, after an accident. Miss Bache entered the hospital as a probationer on August 12th, 1931.

In the absence of Mrs. Ogilvie, the Hon. Treasurer, I have much pleasure in presenting the Financial Statement for the year.

The Hon. Members' Subscriptions amount to £27 15*s.* 6*d.*; the Past Members' Subscriptions and Composition Fees to £109 6*s.* 6*d.*; and the Present Members' Subscriptions to £135 15*s.* 0*d.*

The Subscriptions and Grants have again covered the working expenses of the Cottage and of the different Clubs, and we have also paid a sum of £16 13*s.* 4*d.*, part cost of railway tickets to Honor Oak Park.

Our Income for the year amounts to £582 15*s.* 0*d.* and our Expenditure to £789 3*s.* 0*d.*, being an excess of Expenditure over Income of £206 8*s.* 0*d.* This excess of expenditure has arisen through the printing and publishing of the "Nursing Guide and Register of Nurses" at a cost of £276 7*s.* 0*d.* As we have for the last two or three years been allowing our balance at the bank to accumulate, we were able to pay the sum without having to realise any of our investments, and we have to-day a balance in hand of £135 9*s.* 1*d.* £55 of this sum will be required to pay for renovations to the Pavilion on the new piece of ground at Honor Oak Park.

The adoption of the Annual Report and Statement of Accounts was proposed by Mrs. McRae and seconded by Miss Evershed.

Miss Venning gave a most encouraging report on the year's work of the Nurses' League branch of the Guy's Hospital Ladies' Association.

This was followed by the presentation of the medals and prizes by Miss Gladys White, as follows :—

MEDALS AND PRIZES FOR THE YEAR 1931

The Butterworth Medal

The Butterworth Medal, instituted by Joshua W. Butterworth in 1889, is awarded to all nurses of Guy's Hospital who shall have completed five years' continuous satisfactory service at the said hospital :—

Miss Emily E. P. MacManus.
Sister Dorothy L. Holland.
Sister Evelyn A. Opie.
Sister Mary L. Hall.
Staff Nurse Elsie Bullock.

The Cazenove Medal

The Cazenove Gold Medal is awarded to the nurse who shall have obtained the highest aggregate percentage of marks in all the examinations held during 1930 and 1931 :—

Nurse Annie M. Harris.

The Keogh Prize

The Keogh Prize, consisting of Surgical Instruments, is awarded to the nurse obtaining the highest number of marks in the Surgical Examination :—

Nurse M. Matthews.
Nurse D. Kay.

The Morrison Prizes

The Morrison Prizes, Medical Books, are awarded to the nurses obtaining the highest number of marks in the Examination in Medical and Nursing Subjects :—

Nurse M. Salton,
Nursing Examination, April, 1931.

Nurse M. Benson,
Nursing Examination, August, 1931.

Nurse M. Jackson,
Nursing Examination, December, 1931.

Nurse A. Twysden,
Medical Examination.

Bernard Loftus Brown Prizes

The Bernard Loftus Brown Prizes, presented by Mr. and Mrs. A. Loftus Brown in memory of their son, are awarded to the nurses gaining the highest number of marks in each of the Final Practical Nursing Examinations held during the year :—

February, 1931—Nurse O. Moss.
June, 1931—Nurse R. Rose-Price.
November, 1931—Nurse A. M. Harris.

The Governors' Prize

The Governors' Prize, Medical Books, is awarded to the probationer obtaining the highest number of marks in the Examination for Special Diseases :—

Nurse A. Twysden.

NEEDLEWORK EXHIBITION

PRIZES

SECTION I.—Exhibits that *have not been* washed or cleaned.

CLASS A

Prize .. .. .. Miss Bullock.

CLASS B

1st Prize .. .. .. Miss Boys.
2nd Prize .. .. .. Miss Poyser.
3rd Prize .. .. .. Miss Rider.

CLASS D

Prize .. .. .. Miss Bullock.
Prize .. .. .. Miss Lang.

CLASS E

Prize .. .. .. Miss Massey.
Prize .. .. .. Miss Freeman.
Prize .. .. .. Miss Bates.
Prize .. .. .. Miss Joyner.

SECTION II.—Exhibits that *have been* washed or cleaned.

CLASS B (1)

1st Prize .. .. .. Miss Gummow.
2nd Prize .. .. .. Miss Hesslegrave.
3rd Prize .. .. .. Miss Fenner.

CLASS B (4)

Prize .. .. .. Miss Warren.

Highly Commended

SECTION I

CLASS B (1).. .. .. Miss Halford.
CLASS B (2).. .. .. Miss Scales.
CLASS E .. .. .. Miss Bird.
" .. .. .. Miss D. M. Smith.
" .. .. .. Miss A. P. Green.
" .. .. .. Miss Edmonds.

SECTION II

CLASS B .. .. .. Miss D. V. Stewart.
CLASS B (4).. .. .. Miss Moss.

PHOTOGRAPHIC AND ART PRIZES

CLASS A.—*Photographs entire work of Exhibitor.*

14. "Wayside Huts"—Miss K. Looker (1st Prize).
5. "Brienz"—Miss M. Sparks (2nd Prize).

Highly Commended

6. "Cloud Study"—Miss M. Sparks.

CLASS B.—*Photographs taken by Exhibitors, not printed or developed by her.*

12. "River Frome, Dorset"—Miss M. E. Chick (1st Prize).
4. "River Inn at Innsbruck"—Miss M. Faull (2nd Prize).
5. "Child Study"—Miss Seaman (3rd Prize).
40. "Fontaine dell Ovato, Garden Villa D'Este"—Miss A. Park (4th Prize).

Highly Commended

3. "Mount Wank, Garnish, Bavarian Alps"—Miss M. E. Faull.
14. "Old Times"—Miss M. C. Stewart.
18. "Stanton Lavercourt"—Miss L. Oldendorff.
32. "Visitors to the Sands"—Miss I. Stones.

CLASS C.—*Paintings and Sketches (entire work of Exhibitor).*

10. "Godshill"—Miss M. Gracy (1st Prize).
15. "Norman Gateway, Durham Castle"—Miss H. M. Watkins (2nd Prize).
29. "Studies of Monkeys"—Miss E. M. Everett (Prize).

Highly Commended

32. "Thy Servant a Dog"—Miss E. M. Everett.
7. "Youth and Age"—Miss M. Livingstone.
9. "Mrs. Garrards"—Miss M. Gracy.

A great ovation was accorded the Matron on being presented with the Butterworth Medal. The Superintendent remarked upon her life-long connection with Guy's Hospital, saying that though he remembered her as a child playing in the grounds, it is not until this year that she is entitled to receive the Butterworth Medal for five years' consecutive service.

The Chairman gave a most interesting address. She said that in her training days the Butterworth Medal was known as "28 at least"—23 being the minimum age at which probationers could commence training. She helped to bring it home to us very vividly what a splendid thing it was to belong to the Guy's Nurses' League, and recalled a Christmas spent in France during the war when everyone apparently forgot her except the League. In conclusion, Miss White urged the younger nurses after training to gain further experience in provincial hospitals, where excellent work was being done.

Votes of thanks for their services and interest were accorded to the retiring honorary members of Council, the Hon. Mrs. Molyneux, Mrs. Fagge and Mrs. Steward; to Mrs. Ogilvie, the Hon. Treasurer; to the Matron, the Hon. Secretary; to Miss Smith, the Secretary; to Miss White, the Chairman; and to Lady Bonsor, the President.

MEMBERS OF COUNCIL FOR 1932

Hon. Members—
Lady Fripp.
Mrs. Cameron.
Mrs. Cook.

Choral and Dramatic Society—
Sister Parkins (Asst. Home Sister).
Sister Phyllis (Miss K. P. Jones).
Nurse D. C. Longfield.

Swimming—
Sister Ethel (Miss Waller).
Nurse P. E. Adams.

Library—
Sister Florence (Miss Taylor).
Nurse B. Nockolds.

Garden—
Sister Radium (Miss Hall).
Nurse E. Sambrook.

Needlework—
Sister Rosalie (Miss Dreyer).
Staff Nurse Bullock.

Tennis—
Sister Bright Annexe (Miss Johnson).
Nurse D. Stedman.

Debating—
Sister Hilda (Miss H. Gration).
Staff Nurse Marriott.

Photography—
Sister May (Miss Cawthorne).
Nurse M. Roseveare.

Dance at The Royal College of Nursing

RAISING money is generally a dull business, or perhaps we should say more correctly, with certain Cup Finals in memory, a business of one-sided joy. The Sir Cosmo Bonsor Memorial Fund seemed most certainly to be an exception to the above rule; a few weeks ago we had the Nurses' Concert, which seemed to be enjoyed equally by those responsible for the entertainment and their audiences, and now we look back with pleasure on the Staff Nurses' Dance. This was held in the Great Hall of the Royal College of Nursing, Cavendish Square, on Monday, May 9th, 1932. The organisers were fortunate enough to persuade Mr. and Mrs. Hughes to act as host and hostess, and a very enjoyable evening was in no little measure due to the charming way in which they fulfilled their office.

Although the hall is of considerable size, it could not with comfort have held many more dancers, and the fact that nearly everyone present danced the whole of the time says all that is necessary for both band and floor. In more ways than one are the organisers to be congratulated on their choice of hall; it would, perhaps, be unfair to say that its geographical position was responsible for the presence of an unusual number of celebrities, but it certainly seems to have tempted some whom we do not often see on such occasions.

Nothing was lacking to make the evening a complete success, the buffet at the one end of the room forming the perfect complement to the band at the other. We feel sure that it will prove to have been a real financial aid to the cause for which it was brought into being, and hope that those responsible will feel tempted to "rep. mist."

R. L. S.

The Debating Society

THE first meeting of the resuscitated Debating Society was held in the College Smoking Room on May 4th. Dr. Ryle, the President, was in the Chair, and a large gathering was present. After the Minutes of the last meeting and the rules of the Society had been read, Mr. Hodgkin rose to propose the motion that "This House considers that a Socialistic regime would be damaging to the Arts." He first defined Socialism and Art, postulating Socialism as essentially an economic regime and a thing of the future. Refusing to discuss Russia, apart from declaring such art as she possesses to be a legacy of her old Imperialism, he confessed abhorrence for the decline of modern taste as evidenced by the state of daily journalism, deplored the lack of wealthy patrons of art to-day, enlarged upon art galleries and selection committees and was cut short by the Chairman's time-piece.

Mr. Baker, for the opposition, began by agreeing with Mr. Hodgkin on many points, not the least being his avoidance of Russia. In a short history of art, from cave-dweller to cubist, he pointed out that the highest peak of artistic development had always coincided with a nation's economic supremacy. Save the world to-day by Socialism, said he, and Art would rise with it. He deplored the divorce of artistic works from the surroundings for which they were designed and their incarceration in museums, and poured scorn on the

bits of art stuck on to Victorian buildings like icing on a cake.

Mr. Hill, seconding the motion in an easy Parliamentary manner, reviled Socialism in general and Russia in particular, and pitied those who could be so debased as to imagine anything but ruin for Art under such a system.

Seconding the opposition, Mr. Dunstan gave us a picture of daily life under Socialism, expanded on the effect on Art of education of the masses, and backed up Mr. Baker with eloquent enthusiasm.

A short interval then followed, during which coffee was consumed with biscuits and gusto.

The motion being opened for debate, Mr. Bolton rose with no other object than to break an awkward silence, and said that Russia was quite beyond the pale, as we were discussing Socialism, not Communism. Mr. Taylor then refuted Mr. Hodgkin's definition of Socialism as essentially economic, and insisted that it implied equality of opportunity, and was a thing of the present time. Mr. Layton agreed with Mr. Taylor, cited the concurrence of his servant's artistic taste with his own as an example of the needlessness of education for artistic appreciation, and praised the Russian film. Mr. Gibberd described Vienna as the most Socialistic and at the same time most artistic city, and Hollywood as the reverse, but confessed to a liking for Charlie Chaplin. Mr. Turner, in a maidenly speech, described the artist as essentially a one-job man, and denied that Socialism would give him more leisure and scope for the attainment of his ideals.

Finally Mr. Baker repeated many of his earlier sayings, ascribed Mr. Layton's misunderstanding of him to verbal tenesmus, and with no little wit and some wisdom delineated the case for Socialism. Mr. Hodgkin was then unloosed, and, full of divine fire and pent-up passion, delivered an oration whose scathing scorn was insufficient to wither the opposition, who won the day by 15 votes to 12.

Reviews

Text-Book of Massage. By L. L. DESPARD, with a Contribution by HESTER S. ANGOVE. Published by the Oxford University Press. *Price* 22*s.* 6*d.*

THIS new edition of Miss L. Despard's text-book of massage has been much improved by extensive additions and thorough revision.

Part I which is devoted to a concise arrangement of the anatomy necessary for those desirous of taking up the massage profession, has been much improved by the insertion of new tables of muscles and by extensive revision of the chapter on the nervous system. Numerous well-selected illustrations, some of which are in colour, simplifying the teaching of the subject.

Part II deals with the theory of massage and Swedish remedial exercises. The revision of the classification of massage manipulations is a definite advance, although the therapeutic effects of these manipulations are all too brief.

The section on deformities is excellent, and it is good to note that at last a lucid description of the re-education of paralysed muscles and the movements of walking has been obtained.

The two chapters contributed by Hester S. Angove on "Diseases of the Respiratory Organs" and "Cardio-Vascular System" will undoubtedly do much to give a clear and comprehensive idea of the treatment of these conditions by therapeutic means.

On the whole this book, with its good standard of matter, fine quality of paper and clarity of type, can be thoroughly recommended. It should appeal strongly, not only to the student of massage, but also to the general medical practitioner who desires a useful working knowledge in this important branch of medicine.

Sport

Athletic Club

THE Hospital Athletic Sports were held at Honor Oak Park on Saturday, 21st May, and though there were no outstanding performances, the general standard was up to that of former years.

Half-way through the afternoon, rain spoiled promising attacks on two records, namely, the High Jump and the Shot Putt. The most able performer was W. Hertzog, who gave evidence of his all-round ability.

An innovation this year was a demonstration on the "gyro-wheel." This novel form of "physical jerks" has been introduced into the British army.

The following are the results of the meeting :—

100 *Yards.*—(1) W. Hertzog; (2) W. Groom. 11 secs.

220 *Yards.*—(1) G. V. Doherty; (2) W. Groom. 25 secs.
440 *Yards.*—(1) W. Groom; (2) A. G. Brown. 55 1/5 secs.
880 *Yards.*—(1) A. J. Smith; (2) W. Fernando. 2 mins. 13 secs.
1 *Mile.*—(1) I. G. Robin; (2) J. Dryland. 5 mins. 10 1/5 secs.
3 *Miles.*—(1) J. Dryland; (2) A. J. Smith. 16 mins. 46 secs.
120 *Yards Hurdles.*—(1) P. Griffin; (2) H. A. Hamilton. 17 secs.
High Jump.—(1) L. C. Revell; (2) — Evelyn. 5 ft. 5¼ in. (Record 5 ft. 6 in.).
Shot Putt.—(1) W. Hertzog; (2) M. Kark. 37 ft. 4 in. (Record 38 ft. 11 in.).
Throwing the Hammer.—(1) W. Hertzog; (2) J. A. R. Smit. 87 ft. 2 in.
Long Jump.—(1) O. Alakija; (2) Hertzog and Griffin. 20 ft. 7½ in. (won by ½ in.).

Handicap Events

100 *Yards.*—(1) W. Groom; (2) F. Musgrove.
440 *Yards.*—(1) A. G. Richmond; (2) W. E. Fernando.
Throwing the Discus.—(1) J. A. Smit; (2) Hertzog (scr.). 118 ft. 8 in.
Throwing the Javelin.—(1) W. Hertzog (scr.).; (2) H. A. Hamilton. 163 ft. 9 in.
Tug-of-War.—Dentals. Two pulls to nil.
Relay Race, 880, 440, 220, 220.—Dentals.

This was the most exciting race of the afternoon. In the last 220, Doherty (M), who at first had a few yards to spare, was overhauled by Griffin (D), who won after a magnificent effort by 3 ft.

At the conclusion of the meeting Mrs. Davies-Colley presented the medals and prizes.

The Athletic Club would like to thank those members of the Staff who acted as judges and time-keepers, and the Clubs' Union for their generous financial support. We should also like to thank Mr. Eckhoff and Mr. Winston for their assistance on many occasions, and to congratulate the groundsman on the excellence of his preparations for the sports.

Teams have been entered for the University of London Sports at Motspur Park on 28th May, and for the Inter-Hospital Sports at the White City on 8th June.

G. A. DINGEMANS,
Hon. Sec.

Sailing Club

ON Saturday, May 7th, the United Hospitals' Sailing Club defeated Cambridge U.C.C. at Burnham in two races, by 12-9 and 10-11 points. There was some good racing in a fine breeze. The hospitals' team included F. I. Curtis and G. B. Palmer.

On Sunday, May 8th, the Club sailed against Oxford U.Y.C. in very unaccustomed conditions Three races were drawn, 15 points each, and the deciding race lost 7-3. It was at first a drifting match, but later a breeze made for better sport. The hospitals' team included F. I. Curtis, G. B. Palmer and R. A. Andrews.

Hospital Information, etc.

Pass List

CONJOINT BOARD.

April, 1932.

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J. P. Singer
J. B. C. Murdoch
W. Lewis
H. V. D. Iles
S. C. Shore
A. G. Potts

* Is now qualified.

Change of Address

H. Richards, M.B., B.S., c/o The Director, London Medical Service, Khartoum, Anglo-Egyptian Sudan.

R. van Geuns, L.D.S., R.C.S. (Eng.), Church Street, Klerksdorp, Transvaal, South Africa.

Papers by Guy's Men

H. W. Barber. (1) Unusual form of erythema multiforme centrifugum perstans, case for diagnosis; (2) Post-traumatic alopecia areata. *Proc. R.S.M.*, 1932, xxv, 924, 925.

A. G. Biggam, M. A. Arafa and A. F. Ragab. Heroin addiction in Egypt. *Lancet*, 1932, i, 922.

L. R. Broster, H. G. Hill and J. G. Greenfield. Adreno-genital syndrome associated with cortical hyperplasia; results of unilateral adrenalectomy. *Brit. J. Surg.*, 1932, xix, 557.

N. Burgess. ? Lupus erythematosus. *Proc. R.S.M.*, 1932, xxv, 917.

M. Campbell and S. S. Suzman. Simultaneous disappearance of gallop rhythm and bundle branch block. *Lancet*, 1932, i, 985.

G. B. Dowling. Guttate sceleroderma. *Proc. R.S.M.*, 1932, xxv, 924.

R. A. Greeves. Implantation cyst of iris following cataract extraction. *Proc. R.S.M.*, 1932, xxv, 833.

H. H. Kenshole. Case of proliferation of bone in maxilla and mandible. *Proc. R.S.M.*, 1932, xxv, 892.

Sir E. G. Little. (1) Multiple erythematoid benign epitheliomata; (2) Xanthoma diabeticorum. *Proc. R.S.M.*, 1932, xxv, 917, 918.

T. B. Mouat, J. Wilkie and H. E. Harding. Isolated fracture of carpal semilunar and Kniebock's disease. *Brit. J. Surg.*, 1932, xix, 577.

E. P. Poulton. Prevention and treatment of common cold by Glegg's mixture. *Lancet*, 1932, i, 933.

F. J. Poynton, W. W. Payne and R. Lightwood. Hæmorrhagic hepatitis, ætiology unknown. *Proc. R.S.M.*, 1932, xxv, 785.

R. P. Rowlands. Stones in the common bile duct. *Lancet*, 1932, i, 975.

A. R. Thompson. Some points in connection with successful issue of simple prostatectomy. *Proc. R.S.M.*, 1932, xxv, 907.

Births

CONWAY-JONES.—On 15th May, 1932, at Leewood, Warren Road, Guildford, to Thelma, wife of Powis Conway Jones—a son.

HEEGAARD-WARNER.—On April 6th, 1932, to Ingeborg, wife of N. S. Heegaard-Warner, L.D.S., R.C.S. (Eng.), of 186, Queen's Road, London, S.E.15—a son.

Death

HEATHERLEY.—At his residence, "Ashville," Audenshaw, Manchester, on 5th April, 1932, Francis Heatherley, M.B., B.S., F.R.C.S. (House Physician at Guy's, 1888).

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

THE majority of our readers have doubtless read the letter from the Treasurer of this Hospital which was published in a recent issue of *The Times*. The object of this excellent communication was to lay before the general public certain facts concerning the financial position in which Guy's finds itself to-day. An attempt was made, once and for all, to dispose of the fallacious view, unfortunately held by so large a proportion of the laity, that this Hospital is a wealthy one, and consequently less deserving of support than many others. Nothing could be further from the truth. We feel that at least two factors have been responsible for this harmful and widespread misapprehension. Firstly, Guy's has always made its appeal to public generosity in a manner so commendably dignified that it may in certain quarters have been mistaken for one of independence. Secondly, unlike so many of its fellow institutions this Hospital does not, by reason of its site, make a silent but visual appeal to thousands of daily passers-by. Whatever the cause, we are indebted to the Treasurer for his public correction of this erroneous conception.

Furthermore, in this letter to the press much emphasis was laid on the fact that, whereas originally Guy's was intended to cater for the needs of the sick poor in the immediate neighbourhood, such has been the Hospital's growth that it is now called upon to deal with patients from a much larger radius. That this is the case is immediately apparent to anyone who cares to study the addresses of the patients in any ward. In view of the large area that it serves, surely Guy's is entitled to correspondingly increased support.

The gravity of the present situation is amply revealed by the simple statement that, unless very substantial financial assistance is forthcoming in the near future, a large block of beds may have to be closed. We have only to consider for one moment what this will mean to realise how near we are to a calamity unparalleled in the history of the Hospital.

If Guy's has a great reputation as a house of healing, it has an equally great one as a seat of learning. With the closing down of a number of beds its prestige as a centre of medical knowledge is bound to suffer. Thus, if this disaster is allowed to occur we are faced with no alternative but to watch the steady decline of Guy's from the respected position it has always held among London's teaching hospitals.

Even in these impoverished days we feel there are still those, few though they may be, who are willing to, and capable of, help in a cause so deserving of assistance. Possibly even yet the precarious position of this Hospital is not fully realised by these potential benefactors. Therefore, confident in the knowledge that Guy's will never lend itself to circus-like advertisement of its plight, we trust that this letter to *The Times* is but a prelude of a persistent but level-headed campaign to bring to the notice of a sympathetic public the danger that is ahead. Great will be the gratitude of a nation, ever mindful of the sick, to those benefactors who, by their generosity, retrieve from curtailment in any degree the work of this great Institution.

IN the recent King's Birthday Honours List two men intimately connected with the Hospital received recognition. The first was Lt.-Col. F. E. Fremantle, who was awarded a knighthood for political and public services. Lt.-Col. Fremantle is an old Guy's man and a former editor of the *Gazette*, and he has been M.P. for St. Albans since 1919. We should like to congratulate him upon this honour, which is a compliment not only to himself but also to Guy's.

The second was Wing-Commander Louis Greig, C.V.O., upon whom the honour of K.B.E. was conferred for public services to many social and

welfare organisations. Although Wing-Commander Greig is not an old Guy's man, he is intimately connected with the Hospital as a Governor, and his recognition is therefore of peculiar interest to all Guy's men.

ON Saturday, July 2nd, a Guy's Gala and Motor Race Day is to be held at Brooklands. The event, which is to be honoured by the presence of the Duke and Duchess of York, is being organised to raise funds for Guy's. The committee, which bristles with the names of famous racing motorists, has drawn up an interesting and exciting programme, which includes races for students and an Air Display. Tickets are now obtainable, and we would suggest that, in view of the popularity of the occasion, early application is advisable.

ON Friday, July 1st, a Ball is to be held by the Guy's Hospital Ladies' Association in the Great Hall of the British Medical Association. For the occasion a special band is being obtained, and for those who do not dance, bridge will be provided. Tickets may be obtained from the Secretary, Mrs. Davies-Colley, 10, Devonshire Place, W.1, or from any of the committee.

WE should like to congratulate Mr. L. Cosin, who has been awarded the prize in Group I for the British Medical Association's Prize, 1931-32. The subject for the essay this year was, "How is the Condition of the Teeth of Patients of Special Importance in the Work of Medical Practitioners?"

THE third Dental Dance was held on Friday, May 27th, in the Northumberland Rooms. The function was attended by some 150 guests, and the organisers are to be complimented on the success of the occasion.

THE Rugby Dinner, which was postponed from the 19th May, is to be held on Tuesday, June 21st, at 7 p.m. at Gatti's Restaurant. Tickets, 6*s*. 6*d*. each (exclusive of wine), may be obtained from Mr. I. G. Robin, Secretary, or from the Medical School Office.

Scrotal Swellings

A Clinical Lecture delivered at Guy's Hospital on Thursday, May 19th, 1932, by W. D. Doherty, Esq., M.Ch., F.R.C.S.

GENTLEMEN,—I want to talk to you to-day about scrotal swellings. The reason I have chosen this subject is because I have seen a fair number of cases of scrotal swellings in the Out-patients' Department recently, and I have found that men who come to examine them are not always as confident of their diagnosis as they ought to be. And I think that when you go up for examination you will find that a large percentage of the cases which you are to examine, the short cases at all events, are some form of scrotal swelling.

So I want you to imagine we are dealing with a man who has a scrotal swelling. I want to say a word to you as to how to examine it, and the deductions you should draw from your findings.

SCROTAL OR INGUINO-SCROTAL SWELLINGS

Your first objective is to make out whether the swelling is entirely scrotal, or whether it is what is known as inguino-scrotal; that is to say, whether it goes up into the inguinal canal and disappears into the abdomen. The inguino-scrotal swelling is nearly always a hernia. So you must make sure whether or not it is hernia.

Now a word about the examination of these cases. I believe in having the man standing up before me, while I sit in a chair. I take one side of the scrotum into either hand and examine the contents. You know that the normal contents of the scrotum are: testicle, and lying behind it the epididymis, and running up from that the cord. The vas is contained in the cord. This can be felt as a cord-like structure in the substance of the spermatic cord. Feel the testes and epididymes, run your fingers up along the cords, and note whether there is thickening of the vas or of the cord itself. When you have done that you will probably have made out some form of swelling or abnormality in one or other side of the scrotum. You want to know next whether it is confined to the scrotum.

The test as to whether the swelling is scrotal or inguino-scrotal is as to whether you can get your fingers round the cord above the swelling. So if it is a scrotal swelling you must be able to feel the normal spermatic cord above the swelling. If you are able to do that you can say that the swelling is entirely scrotal.

If you find, on running your fingers up, that this swelling seems to go up the inguinal canal and to disappear along it, you must do a further test in order to ascertain whether it is a hernia or not. The other main test to make out whether it is a hernia is, when you have got to the top of the swelling as far as you can go, you grasp the cord between finger and thumb and ask the patient

to cough. If it is a hernia you then feel an expansile impulse forcing your fingers apart when he coughs. As a general rule that will tell you that the swelling is a hernia. There are other swellings which give an impulse on coughing, but the commonest to do so is a hernia. Be careful about this, because I see many examining at out-patients who put their hand flat on the abdominal wall to elicit an impulse. If you do that you find that your hand simply comes out and goes back again, and the more corpulent the man the greater the excursion; the impulse must be expansile.

So imagine you have examined the patient and have decided that you can get above the swelling, and that it is, therefore, confined to the scrotum. *If that is so, how shall you proceed?*

CYSTIC OR SOLID SWELLINGS

You must next determine whether it is cystic or solid. For this purpose in other parts of the body you use the test of fluctuation. You put two fingers on the swelling, and move one, keeping the other stationary, and see if an impulse is transmitted from one to the other. But in the scrotum that test is not often of much value, because the swelling is small and in small swellings it is difficult to test fluctuation.

THE TRANSILLUMINATION TEST

A scrotal swelling is a good one in which to use the transillumination test. You put a good light behind the scrotum and see if the light comes through to the front. But there are certain points to observe in this, otherwise you will go wrong. I see many going wrong over this test, and then, of course, your diagnosis is upset.

I had a case in out-patients last week which was sent by a doctor because of a swelling in the scrotum. The doctor had failed to get translucency, and so concluded it must be a solid growth, and told the patient so, and he was sent here for removal of a malignant growth. We did the translucency test at out-patients and found it positive. We put in a trochar and cannula and drew off the fluid; it was a simple hydrocele. Points to remember are: (1) Before testing the swelling in this way you must make sure that it is tense. Hydroceles are fairly tense. Grasp the cord above the swelling so as to make it more tense. (2) You must have a good light, and generally a small light is better than a large one. (3) You must have the part screened from the daylight by an assistant while you do it. Light will not be evident through a thick-walled hydrocele unless you examine it in the dark. At examinations I have seen men do this test badly because they are afraid to ask anyone to help them in screening the part from the light, as by holding a blanket. The examiner will hold the blanket for you if you ask him; he may even hold the light for you. You will get more marks if you give the impression that you know what you are doing.

CYSTIC SWELLINGS

If the swelling is translucent, what is it likely to be? There are only three common translucent swellings in the scrotum: (*a*) hydrocele of the tunica vaginalis; (*b*) hydrocele of the cord; (*c*) cyst of the epididymis. You have then to decide which of the three the case is.

If you think about the positions of the anatomical structures you will be able to tell what the swelling is. Hydrocele of the tunica vaginalis is a collection of fluid distending the cavity of the tunica vaginalis, which consists, you will remember, of two layers covering the front and sides of the testis and being reflected on to the epididymis. The distension is not only in front, but goes all round the testicle, so that you will not be able to feel the testicle apart from the swelling as a whole. That is a very important point. But you may be able to see the dark shadow of the testicle at the back of the transilluminated cavity.

(2) Hydrocele of the cord. This is a collection of fluid in the unobliterated processus vaginalis. The latter lies in front of the spermatic cord and is wrapped up in its coverings. It is normally fibrous, but a remnant of it may remain and become a cyst situated above the testicle and running up in a pear-shaped manner along the cord. The testis and epididymis can be felt apart from the swelling.

(3) Cysts of the epididymis. These are fairly common, especially in middle-aged and elderly men, and they are thought, by some, to arise from old chronic inflammation in the epididymis itself, that is to say, by portions of the epididymis becoming distended behind the fibrous obstruction. They often contain fluid having in it spermatozoa, though not always. The position of cyst of the epididymis is rather different from that of hydrocele of the cord; it is connected with the epididymis and the back of the testicle. You nearly always find that a cyst of the epididymis tends to rotate the testicle forward, the swelling is therefore above the testicle, but you cannot feel the epididymis apart from the swelling. In this way you can distinguish it from hydrocele of the cord.

I should now say a word about a swelling in the scrotum which is neither cystic nor solid, namely, varicocele. A varicocele is a swelling due to a dilatation of the pampiniform plexus in the scrotum. Points of importance are: that it

always occurs on the left side; very seldom, practically never, is there a varicocele on the right side, and when it is it should make you think of some organic obstruction above. You feel a bunch of dilated veins running into the scrotum on the left side. On examining with the patient standing up, the veins are full, and the text-book description that it feels like "a bag of worms" is very apt. When the patient lies down the veins empty and no swelling is felt. If you ask the patient to cough you will feel an impulse when there is a large varicocele. Varicoceles are generally easy swellings to recognise.

SOLID SWELLINGS

And now with regard to solid swellings. We can divide them up in this way: First, traumatic. There is one very common scrotal swelling, traumatic in origin, a hæmatocele. Hæmatocele is an encysted collection of blood. You will not get it in epididymal cysts or cysts of the cord; it will always be in the tunica vaginalis. It may cause much difficulty in diagnosis, because you have a swelling which surrounds the testicle, one which feels hard and solid, which is not translucent, therefore you say to yourself, "This must be a solid swelling," and so you think of malignant growth. But generally you can diagnose hæmatocele on the history, which is probably the most important thing. Hæmatoceles occur in two ways: (1) by a direct blow on the scrotum—there may be a kick in the scrotum and the development of a hæmatocele. You have the story of the injury, and a swelling coming on pretty soon after the injury, and that should suggest a hæmatocele. (2) They come on as a result of tapping a hydrocele. If a man says he had a swelling and his doctor tapped it, and it has since got bigger and harder, the probability is that it is a hæmatocele. But there will be a number of cases in which you will be in doubt when you have examined the condition as to whether it is a hæmatocele or a solid swelling of the testicle itself, in which case you will probably have to operate on it before you can make a decision.

Secondly—inflammatory swellings. Inflammatory swellings in the scrotum we will divide into acute and chronic.

With regard to the acute inflammation, how will you recognise them? In the same way as you diagnose an acute inflammatory swelling elsewhere in the body, that is to say, there will be pain, heat, swelling and general œdema. There will be an œdema of the tissues of the scrotum and, later, œdema of the cord, so that the whole cord feels thickened, *i.e.*, all the structures of the cord and not the vas alone. These characters will suggest it is an acute inflammatory condition. You seldom get an acute inflammatory swelling confined to one of the scrotal contents; it nearly always affects them all. Therefore the condition is called acute epididymo-orchitis, an inflammation of both the testicle and the epididymis.

Now I will tell you the common causes of acute epididymo-orchitis, so that you will know what to be on the look-out for when you diagnose the condition. Acute infection reaches the testicle and epididymis in one of two ways. The commonest way is by lymphatic spread from the genito-urinary tract, commonly from the urethra and the seminal vesicles. Thus acute epididymo-orchitis most commonly occurs secondarily to a urethritis. What causes the urethritis? The commonest cause of it is gonorrhœa. Therefore think first of gonorrhœa. Of course, you do not label every person with acute epididymo-orchitis as suffering from gonorrhœa; if you do you may get into trouble. Any other form of urethritis may cause epididymo-orchitis. The other causes are those which produce irritation in the urethra, as from the passage of an instrument; I have known an infected catheter cause it. Recently I saw a man who had taken the risk of acquiring gonorrhœa, and he was so nervous about it that he went home and gave himself a douching with a powerful solution of permanganate of potash. Next day he had a profuse discharge, and he thought that indicated the disease, and so he came along here. We had the urethral discharge examined several times, but never found gonococci in it, so the urethritis was chemically produced.

There may be a primary epididymo-orchitis, that is to say, blood-stream infections in the scrotum leading to epididymo-orchitis. It occurs commonly in specific fevers, and in this connection you must always think of mumps, which is the commonest association of all. Generally it is bilateral, so that both testes may become swollen and tender. It may be met with in the course of scarlet fever, or of influenza, or of typhoid fever. And, lastly, you may find it in association with bacilluria, namely, B.C.C. infection of the urine. In this latter condition the infection may proceed to breaking down and abscess-formation. In order to exclude gonorrhœa in all these conditions you must make smears from the urethra; there may be chronic gleet.

Now chronic inflammatory swellings. There are only three common ones in the scrotum: (1) gonorrhœa, (2) tubercle, (3) syphilis. How will you recognise first that it is a chronic inflammatory swelling? Generally because it is solid and painful. It will not have the redness, the œdema of the acute inflammatory swelling. Ten-

derness is the main feature about it, because most of the other scrotal swellings are not painful.

Let me tell you how to distinguish between these three inflammations. (1) In gonorrhœa the chronic infection is always in the epididymis ; the gonorrhœa spreads from the urethra along the lymphatics and so into the epididymis, therefore it first affects the lower pole of the epididymis. Then the nodules spread up, and there is a thickening of the whole epididymis. You will generally find hard, painful nodules in the epididymis, but no enlargement or thickening of the testicles.

(2.) Tubercle. There is always an argument as to how tubercle gets into the epididymis, whether by the blood stream or by the lymphatic stream. Generally, as in most of these matters in dispute, the middle course is the easiest, and you may say it gets there in either way. It may get there *via* the blood stream, or from the bladder and seminal vesicles and urethra—that is, by the lymphatics. If it gets there by the blood stream, nodules will first appear in the globus major, the most vascular part. If it gets there by the lymph stream the nodules will first appear in the globus minor. So at the commencement of the disease it may be difficult to distinguish it from gonococcal epididymitis. Later, however, these nodules begin to soften, run together and break down. The scrotal skin over the epididymis becomes œdematous and adherent, and eventually a sinus forms at the posterior part of the scrotum. This is an important diagnostic point.

In the late stages the testicle becomes involved and breaks down, too, and tuberculous nodules can be felt up along the vas.

There are one or two other points which you must go into. Never fail to examine the rectum. The spread from testicle and epididymis is always up along the vas to the seminal vesicles, and these can be felt above the prostate. And if there is advanced tuberculous disease in the scrotum you will almost certainly be able to feel an enlarged seminal vesicle on that side. You will probably feel an enlarged prostate, for the tuberculous disease spreads into the prostate also. Your prognosis, treatment, etc., depends on the involvement of these other structures.

If you have excluded gonorrhœa and have a disease primarily starting in the epididymis and becoming adherent to the scrotum posteriorly you can be almost certain it is tubercle.

(3.) Now a word about syphilis. Syphilis involves the scrotal contents practically only in the tertiary stage ; you will seldom have attention called to the scrotum in the primary or the secondary stage. Where does it start ? In 90 per cent. or more of the cases the tertiary syphilis starts in the testicle, and that is the important differentiation between it and tubercle, as the latter starts in the epididymis. It is common to see a gummatous testicle. And syphilis generally starts in the middle of the testicle, and the whole testicle becomes swollen and chronically inflamed. There is a small celled infiltration, and the centre of the testicle begins to degenerate and becomes soft. In the next stage the central softening works towards the surface, as tubercle does, but the tendency is for it to be adherent to the skin anteriorly—another means of distinction from tubercle. You must take everything else into account. Other things about it are, a loss of testicular sensation in gumma of the testicle. Then you have got to look for evidence of syphilis elsewhere in the body, and while you are looking note whether there are any old scars of primary ulcers on the penis which will help your diagnosis. And if the Wassermann is positive, your diagnosis of syphilis will be confirmed.

The last thing I have to talk about in this list is neoplasms in the scrotum. I always say that one arrives at the diagnosis of neoplasm of the testicle by a process of exclusion, that is to say, you exclude everything else, and if you are still left with a solid swelling in the scrotum, your diagnosis is probably new growth.

New growth may be either innocent or malignant, and I will say, at the outset, that I have never seen an innocent neoplasm in the testicle or epididymis ; so if there is a new growth there you can be practically certain it is malignant, though there have been reported cases of innocent growth there.

I do not propose to go into the pathology of these, but to say what a malignant testicle feels like and what it is likely to be. It occurs most commonly in fairly young men, *i.e.*, men in early adult life. There is generally a story of gradually increasing enlargement of the testicle, no history of injury or of a blow. On examination you will find a solid swelling which does not come into the categories we have mentioned, and the swelling is generally in the testicle itself, as primary growths of the epididymis are rare. The swelling is hard and heavy, the word " heavy " is the term usually applied by the patient. Then you will carefully examine the patient elsewhere to see if there are any signs of enlarged glands. Remember that the drainage from the scrotum is not into the inguinal glands, as they only drain the skin of the scrotum and leg, and not the testicle itself. So there will not be any enlarged inguinal glands unless the growth is fungating through and involving the scrotum. The glands which first become enlarged are those along the sacrum and vertebral column ;

they are not palpable until fairly late. There may be a small nodule in the cord, a secondary deposit, but it is rare for this to happen. A Wassermann test should always be done to exclude syphilis.

In conclusion, I will say that the only three solid swellings of the testicle I have spoken about are new growth, hæmatocele and gumma, and very often, having excluded everything else, you will be left with the differential diagnosis between these three. Gumma is generally excluded by the Wasserman, and if that is negative you will be left with hæmatocele or new growth. In hæmatocele the history will help you, but not always, so that exploratory operation may be undertaken before the correct diagnosis is made.

Gentlemen, my time is up, and I hope my few words may help you in your diagnosis of scrotal swellings.

Uræmia

A Paper read before the Physical Society by A. J. Grace, Esq., B.A. (Sask. and Oxon.).

(*Concluded*)

Other Organic Substances

Although work on many other substances besides urea has been by no means scanty, the results have proved almost wholly negative and, therefore, need not detain us long. That in chronic azotæmic nephritis the non-protein nitrogen and urea values are regularly increased together has been indicated, and also that the relation between these two is far from fixed. The criticisms applied to fancied relations between certain urea values in the blood and causation of uræmia apply equally well to the non-protein nitrogen as a whole in almost every instance. The various constituents that go to make up this latter have been studied both individually and in groups with negative results. That creatinine played an important part was the contention of Schottin, whose views are brought to nought by Feltz and Ritter.[28] The subject has been considered more recently by Myers and his co-workers,[52] who conclude that this extractive has its chief importance in severe azotæmic cases merely as a prognostic indicator. The same is all that can be fairly claimed for other known retained substances. It is worth observing that of a series of 94 cases followed for a time, all having blood creatinine values exceeding 5 mg. per cent. (normal, 1.2 mg.), 80 per cent. had died in a period of less than two months. It was explained that accumulation of this substance only occurs late in the disease. Indican, normally present as a trace in the blood, was once favoured as the cause of uræmia, but has since been injected in considerable quantities with impunity.[30 45 67]

Many other substances were tested by Feltz and Ritter and by numerous later workers, all with negative results. These include the following :— polypeptides and various individual amino acids, phosphatides, nucleotides, cholesterol (usually on the low side in uræmia), hippuric acid and hippurates, imidazole radicals, bilirubin and urobilinogen. The list of possibilities which have been exploited to the full extends to include certain precursors or derivatives of known constituents, especially such as could be theoretically related up with urea. The two chief views, relating to ammonium carbonate[45] and ammonium carbamate,[67] have received no experimental support and help us not at all.

Some significance may conceivably be attached to the fact stressed by Foster, that the blood in uræmia often shows an increase in the non-protein nitrogen which is relative as well as absolute. It is likely that here there are substances that are precursors of known constituents of the urine. Until the nature and effects of all of these nitrogenous bodies have been elucidated it is quite futile to allow one's imagination free play in this field. Brun[68] has attached much importance to an observation that in uræmia there is a marked augmentation in the non-protein nitrogen of the cerebro-spinal fluid, again both relative and absolute.

In view of the available facts it is manifestly impossible to accord to any of these organic substances an essential part in the pathogenesis of uræmia. It is equally clear that our modern knowledge concerning the relationship of these same substances to the metabolic processes of the organism is still infinitely short of perfection. Once again our attention must turn towards the fruits of other endeavours in a search for some outstandingly helpful results.

Acidaemia

That acidæmia is a frequent but not invariable adjunct of severe chronic nephritis has been recognised for many years. (It is of interest to us to realise that some of the pioneer work on this question was carried out by Drs. Poulton and Ryffel.) A marked case shows all the physiological evidences of acidæmia, notably lowering of the alkaline reserve of the blood, diminution in the partial pressure of CO_2 in the alveolar air,

reduced oxygen-combining power of the hæmoglobin of the blood, and an actual increase in the cH of the plasma demonstrable by the hydrogen-electrode or, better, the glass-electrode. Bennett[5] has stressed the point that acidosis (used in the true sense as acidæmia) in uræmic patients is most striking in those showing the most obvious nervous and respiratory symptoms.

Considering the normal complexity of the processes involved in the regulation of the acid-base balance of the blood, it is clear that several possible factors might underlie the disturbance in these cases. Fishberg refers to four possibilities: (1) retention of anions, (2) diminished kations in the blood, (3) abnormal acids present, (4) defective ammonia production. Some of these will be postponed for consideration in a later section, the others being summarily dealt with at once.

The concensus of opinion is strongly against there being any part played by abnormal acids. Marriott and Howland[47] quote often confirmed evidence against there being any part due to acetone bodies, lactic acid, or other organic acids. Peters[59] alone seems to offer slight evidence to the contrary. In a series of cases of glomerulonephritis investigated by Henderson and Palmer,[39] acidosis was found to have a constant association with deficient production and excretion of ammonia. Failure of a damaged kidney in respect of the ammonia function was the point stressed by Nash and Benedict[54] in conditions of this sort.

Since Schleyer and Straub published their paper entitled, " Is Uræmia an Acidosis ? " this question has received considerable attention.[51] Much evidence has accumulated to show that this is definitely not the case, although acidæmia appears to be the usual cause of the distressing dyspnœa commonly met in uræmia. Although this trying symptom can be relieved by the exhibition of alkalies, yet the general course and termination of the condition is but little altered. A case fully described by Bennett illustrates this point admirably. Nervous and respiratory phenomena were prominent along with an extreme acidosis, the alkali reserve measuring 12.6; large doses of alkalies raised the latter figure to 56, which is within normal limits, at the same time causing some amelioration of the symptoms; howbeit, the fatal issue was very little delayed. Summing up this question, Peters and Van Slyke state, " The only certain benefit of alkali administration is relief from the distress of dyspnœa." Osman points out that similar degrees of acidosis as that of uræmia are by no means uncommon in many other conditions, and yet these do not develop uræmic symptoms. Finally, fatal uræmia has been described in the complete absence of acidæmia.

It is obvious that acidosis in itself is not the cause of uræmia, but that it may contribute to the symptomatology in a given instance, the dyspnœa being acidotic rather than truly uræmic. In that other disturbances of the physico-chemical equilibria of the blood are inevitably co-existent with the acidosis and may be profoundly influenced by it, it behoves us to defer attempts at conclusions until the chief of these other derangements have been reviewed.

INORGANIC CONSTITUENTS

Although one would naturally look for an increase of these in the blood in conditions where nitrogen retention is marked, this is but rarely the case. Studies of the physico-chemical changes in the blood in uræmia in human beings and experimental animals has shown only a moderate depression of the freezing point, *e.g.*, from the normal value of —0.56 to a maximum of, perhaps, —0.68, and exceptionally a figure as high as —0.80 has been recorded; the electrical conductivity is not, as a rule, increased.[45 67] This argues in favour of a retention of organic molecules, but not of electrolytes. However, no constant parallelism has been shown to exist between the physico-chemical blood changes in uræmia and the clinical aspects. Probably there is a relation which is obscured by the complexity of factors. On the assumption that an accumulation of electrolytes occurred in uræmia, various German workers sought to account for the facts on this basis, and were able to produce a suggestive condition in animals by injecting hypertonic saline solutions. A similar observation by Herter has already been noted, while the experiments of Andrews and of Streicher will be recalled as indicating that the osmotic disturbances are probably only one of a series of factors participating. Recently the question of the osmotic pressure in uræmia has been emphasised once more by de Almeida,[16] who points out that living tissues exist only in fluids differing in salt content from that of the cells themselves; he believes that, as the salt content of uræmic plasma approaches that of the tissue cells, a condition incompatible with normal function ensues, which is, in fact, uræmia. The evidence on which this view rests does not appear to be sufficient to warrant it.

Most cases of severe nephritis show some degree of reduction of total fixed base in the plasma, *i.e.*, Na, K, Ca, Mg estimated together. There may be some corresponding reduction in the serum acids, viz., chloride, bicarbonate and phosphate, as has been shown by Blackfan and Hamilton,[6] but this is never proportionate in degree. These workers found that the total base-binding capacity

of the serum is often much diminished, and attribute this to loss of serum proteins, believing the primary factor to be albuminuria which unduly depletes the blood of these substances. In uræmia a diminished stock of fixed base is very commonly found. A number of cases were investigated by Rabinowitch[61] with special reference to the changes affecting each element and the relative proportions of these to one another. The greatest deficit invariably affected the sodium, for which figures as low as 128, rather than the normal of over 140, milliequivalents were found. Potassium was usually normal, but was somewhat increased in a small percentage of cases. Calcium was frequently reduced, while the magnesium values were very constant. Marked alterations in the ratios of these cations to one another were present in five of the 23 cases examined, and in these no constant relation to the occurrence of uræmic symptoms could be discerned.

The subject of electrolyte deficit has been reviewed by Peters and Van Slyke, while de Wesselow[21] had previously drawn attention to the main facts. The chief factors leading to this state of affairs include the following: Ingestion is often interfered with by the presence of nausea, while vomiting leads to the actual loss of large quantities of NaCl. It has been proved that little chloride is removed as free HCl in this manner, and hence vomiting cannot be of much importance as a mechanism of combatting acidosis. Polyuria is usually the case, or at least has been so, and this seems to sweep out electrolytes to an excessive extent. It appears that the abnormal kidney is no longer able to preserve these constituents in relation to the threshold standards which it normally respects. The ammonia function is frequently defective, further increasing the loss of fixed base in the urine in combination with acid radicals. Some evidence suggests an undue loss of chloride in the stools, even apart from there being any diarrhœa.[59] The combination of these various factors is apt to cause a condition of severe salt depletion and dehydration, but this will be considered in another place. When the chloride value is low the bicarbonate figure may fluctuate inversely (Myers[53]), but more usually both are reduced together (Peters and Van Slyke). Where acidosis is a prominent feature the bicarbonate is necessarily low, while some retention of the phosphate and sulphate radicals is the rule. The more important of these several points will now be treated separately.

Potassium

It was at one time believed that this element might account for uræmia, for it was known to be present in the urine in considerable quantities and to have a strongly toxic influence upon the heart; this belief proved especially attractive to Feltz and Ritter, who were unable to incriminate any other substance as convincingly upon experimental grounds. It is now very evident that changes in the potassium content of the blood are quite insufficient to cause any untoward effects, at least directly. It has been stated that Andrews and Streicher both attached significance to alterations in the K : Ca ratio. It is likely that this is of importance along with other factors, but its variations are due mainly to the fluctuations in the blood calcium values.

Calcium

It has been established beyond question that a reduction of the serum calcium in cases of chronic nephritis is extremely common. The exact reason for this is not altogether clear, but it seems to be related to a coincident increase in the plasma phosphate. This relation has been emphasised by de Wesselow in an able review of the subject in 1922.[19] Increased excretion of calcium does not appear to play much part. The main factors are undoubtedly very complex, and include direct precipitation of calcium and alterations in the form of its combinations. Ordinarily about one-third of the serum calcium exists in a colloidal form combined with serum proteins; any reduction in the serum proteins will then have some effect on the calcium content. The essential factor of importance lies in the level of ionisable calcium, and this presents a most intricate problem indeed. Among the conditions affecting this value may be mentioned the total serum calcium, its partition between the different forms, the phosphate level, the value and nature of the serum proteins, the reaction of the blood, and the functional activity of the parathyroid glands. Nutritional factors relating to the supply of calcium, its absorption, and the relation of vitamine D are important. Probably there are still other factors not yet clearly defined. In uræmia, where complicated alterations in these various connections are invariable, the exact significance of changes in the serum calcium is very difficult to assess. De Wesselow describes a case with a serum calcium value of 5-6 mg. per cent. where giving large doses of calcium lactate had practically no effect in checking the progressive fall; he concludes that the trouble does not lie in a deficiency of available calcium, but in the altered chemical composition of the blood, whereby it is no longer able to hold this element in solution. In general, therapeutic measures directed towards raising the serum calcium of this type of case have met with disappointing results.

Considering the number of vital physiological roles possessed by calcium and the manner in which knowledge of its importance relative to various pathological conditions has been extended in late years, there is small wonder that many have sought to find here at least a partial explanation of the origin of uræmia. The frequency with which the serum calcium has been shown to be demonstrably reduced in this condition has added zest to the search, while variations of the numerous factors affecting the ionisable calcium value have been used as additional support. De Wesselow suggests that there may be here a factor which, by leading to a condition of heightened nervous excitability, may play a part in causing convulsive phenomena as well as being the probable major cause of the general tremors and localised twitchings so frequently seen. The possibility of such a relation to convulsions had been previously pointed out by Marriott and Howland.[47] A close relationship between uræmia and tetany on the basis of certain manifestations common to both was remarked by Bennett[5]; he referred to the association of low serum calcium values in both, but with acidosis in the one case and with alkalosis in the other. Peters and Van Slyke have affirmed the same parallel at least in some cases.

It is clear that certain uræmic phenomena can be reasonably explained on the basis of the diminished serum calcium. To prove that this is the true explanation is another affair. However, it seems distinctly likely that this is the case in many instances. De Wesselow attempted to harmonise the pathogenesis of "fits" in uræmia and eclampsia, but noted that in both cases the serum calcium figures were commonly little, if at all, abnormal, *e.g.*, 8.5 mg. per cent. No doubt these examples both belong in the group of convulsive uræmia, and, therefore, do not offer any real difficulty to believing that a low serum calcium is closely bound up with convulsive phenomena in true uræmia. The above writer discusses other cases where a surprisingly low serum calcium has been unaccompanied by any symptoms of tetany. The influence of acidosis and other derangements offer the most probable clue to understanding these apparent exceptions. I am greatly indebted to Dr. Osman for permission to refer to a small series of serum calcium values in uræmic patients illustrating strikingly the lack of absolute constancy of any relation between these figures and the clinical signs and symptoms. Twitchings and convulsions occurred in several instances of comparatively normal serum calcium, while one case even showed a positive Chvostek reaction; this was a female, aged 25, with blood urea 374 mg. per cent. and blood pressure 180 mm. Hg., the calcium value being 10.0 mg. per cent. There were no fits or twitchings in this individual. Other cases with low values failed to show the expected symptoms.

The complexity of the problem is great. No incontrovertible part can yet be claimed for calcium in the pathogenesis of uræmia. Probably it is important, causing convulsions of a different underlying nature than those of eclamptic uræmia in extreme instances, while less severe disturbances cause the less violent and more local motor reactions. Part, at any rate, of the explanation may lie along the lines of disturbances of normal electrolytic ratios, especially that of calcium to potassium. It may be recalled once more that such a disturbance, along with acidosis and a raised blood urea, was thought to be significant in certain cases of experimental uræmia presenting the typical terminal pictures of twitchings, convulsions and coma.

Anions

In general, retention of phosphates is marked in chronic azotæmic nephritis. De Wesselow[19] has shown that this retention really bears a close relation to that of nitrogen, but the parallel is so often obscured by the influence of extraneous factors that it may not appear quite evident. This point suggests that phosphate is rather an index of renal failure, like so many other constituents, than of importance in the production of uræmia. Its interest is mainly prognostic, but certain observations suggest that it has some effect.

Marriott *et al.*[47] found that phosphate retention was a constant occurrence in nephritics with acidosis, but variable in the absence of this condition. They believed that deficient excretion alone underlay this accumulation, and that here was to be seen the chief, though not of necessity the sole, cause of the acidæmia. Fetter[29] confirms the above conclusions in the main, but distinguishes two types of acidosis related to disturbances of the phosphate metabolism in the body. In one case retention is the cause of acidosis; in the other the latter condition is primary and phosphate retention is only apparent. Excessive mobilisation and excretion of phosphate in the acid form is an artifice for stabilising the reaction of the blood. In this type the total phosphate of the plasma is usually below normal, although this is less often true for that in the inorganic form. A case of acute nephritis is described in which marked nitrogen retention and acidosis were associated with a low phosphate elimination in the urine; administration of disodium phosphate was followed by dramatic amelioration of the symptoms. Conclusions based on a single case are of little value,

but this suggests for selected cases a therapeutic measure not often adopted. Whether any parallel can be claimed for chronic nephritics in uræmia is not clear.

Peters and Van Slyke could not demonstrate any constant parallel between the degree of phosphate retention in uræmia and the acidosis. De Wesselow quotes experiments believed to show a toxic action of high phosphate values in the plasma upon the tissues. Administration to animals of doses causing a similar total figure in the body to that of severe human chronic nephritis caused symptoms including vomiting, diarrhœa, tremors and tetany. Obvious deductions are vitiated by coincident fluctuations in the calcium values, but it is believed that prolonged high figures for phosphate may have a profound deleterious effect. De Wesselow found that the plasma phosphate showed a greater degree of proportionality to the clinical condition of uræmic patients followed than did any other laboratory finding, which leaves one with a strong impression that there is some subtle relationship of which we are not wholly aware.

No final conclusion can be reached then that phosphates either are or are not causally related to uræmia. The intimate connection with calcium metabolism, which is subject to so many influences, and the association with acidæmia, provide one more complicated set of inter-relationships to be unravelled.

Sulphate

Sulphate retention has been found to be extreme in some cases of uræmia.[18] This must play some part in regard to the causation of acidosis, but beyond this there is no evidence for this radical having any great importance in uræmia.

Chloride

Chloride metabolism has long enjoyed great notoriety in France in connection with uræmia as well as with chronic nephritis. Following the lead of the French school, de Wesselow[22] has discussed the question in regard to chloride excretion in chronic renal disease. The fact that chloride concentration is typically low in both the urine and the blood is found to depend upon a retention of salt in the tissues as a result of which the kidney "lacks the opportunity rather than the capacity for excreting chloride." Such cases may or may not be further associated with œdema of an extra-renal origin—due to the "pre-renal deviation" of water and salt. Where no œdema occurs, and a condition called "dry chloride retention" obtains, uræmia is not infrequent. This fact has been well expressed in the following words by Blum, Van Caulaert and Grabar: "Au cours de nos recherches sur la rétention chlorée sèche, nous avons trouvé que cet état est fréquemment a la base de l'urémie; nous avons démontré que l'urémie est accompagnée d'une rétention de chlore dans les tissus que nous avons appelée la chloropexie tissulaire."[8]

Cristau[15] has recently thoroughly reviewed the question of the relation of salt to uræmia. On the basis of the first causes two groups are distinguished according as the essential factor is renal or extra-renal. The former corresponds to true uræmia or the uræmia of the "classical azotæmic nephritis" of Blum *et al.* Here one is likely to find marked nitrogen retention, acidosis, hypertension, etc. Hyperchloræmia would be anticipated, but is more usually replaced by hypochloræmia due to the retention of chloride in the tissues.

As a result of excessive intervention of those factors previously mentioned as producing disturbances of the normal mineral salt balance in the blood, notably prolonged vomiting or diarrhœa, an azotæmic syndrome identical with asthenic uræmia may develop. Here the factors, to which Cristau adds some of a less definite nature, are extra-renal, and the condition constitutes the azotæmic syndrome "par manque de sel" of Blum. The important underlying factor is thought to be the extreme depletion of the organism with respect to chloride. Details of a case of this sort are provided by Blum *et al.*,[8] showing the dramatic effect of administration of salt; not only did amelioration of the symptoms commence at once, but the blood changes retrogressed from the first infusion. In three weeks the plasma urea had fallen from 486 to 43 mg. per cent., accompanied by a return to normal of the plasma chloride from a low figure of 256 mg. per cent. Although main emphasis is laid upon the chloride values, one cannot but feel that part of this striking result must be due to other factors, for fluid is administered to a dehydrated individual, and it is known that uræmia is of rare occurrence where there is œdema, illustrating some importance of the diluting factor (among others); also, sodium is supplied in the salt, and this helps to restore a balance which has been disturbed. In sharp contrast to the above case another is described to which a salt-free diet was given on the misapprehension that the case was one of tissue retention of chloride. Death resulted, and examination showed great depletion of the chloride content in the principal organs.

A third group has been dealt with by Blum, Van Caulaert, and Grabar.

This consists of cases with features characterising both of the previously described pure types, *i.e.*,

mixed cases. Here there is a "syndrome azotémique du au manque de sel" superadded to an underlying chronic nephritis of the azotæmic variety. It is important to disclose the presence of the secondary factor, for it is amenable to treatment with salt even although the portion of the symptomatology due to the primary kidney affection is almost inaccessible to therapy. Again, a typical case is described and its response to treatment detailed.

Emphasis is laid upon the frequent impossibility of arriving at a correct clinical distinction between mixed cases and true uræmia. The symptom-complex is likely to be identical in the two instances. Some indication is usually available on the basis of the history and definiteness of signs of chronic renal disease. The importance of a complete laboratory examination of these patients is pointed out, not only in order to reach a correct diagnosis, but also in the effort at illuminating the pathogenesis of the conditions. The chloride content of the plasma may be of value, but most often it is low in both types. This is further complicated in cases with acidosis by an exaggeration of the changes comprising the physiological chloride-shift; evidence of this may be supplied by a comparison of the chloride values of the plasma and whole blood. The normal difference between these figures (abour 355 and 280 mg. per cent. respectively) is then found to be diminished. This value, in association with the alkaline reserve of the blood, usually makes the diagnosis clear, for the changes found for whole blood reflect fairly truly the changes in the tissues. Where desired, a further index of the chloride content of the tissues is afforded by examination of the cerebro-spinal fluid.

These interesting descriptions of types of uræmia directly related to the salt content of the tissues are very striking. The efficacy of the lines of treatment adopted in the different examples convinces one that there must be real importance in this relationship. These observations offer the clue to the long-known but little understood cases of gross nitrogen retention noted in various conditions of extreme vomiting, as in high intestinal obstruction. A group of such cases has been reported by Brown, Eusterman, Hartman and Rowntree,[14] and two others have been described by Borst.[10]

These are, in effect, simply instances of an uræmic syndrome due to salt deficiency, and this may or may not develop upon a basic chronic azotæmic nephritis. Where both factors are operative there results a most undesirable load for already failing kidneys which are quite incapable of dealing with the excessive nitrogenous content in a thoroughly dessicated individual. The vicious circle which ensues can have but one possible termination in a severe case apart from timely and appropriate therapeutic intervention.

The relative frequency of mixed cases can probably be accounted for from the knowledge that the blood chemistry is already disturbed as a result of the renal factor, and this may be looked upon as an acquired predisposition to this type of so-called "pseudo-uræmia." If one may be permitted to express the relationship in the terms of physiology dealing with the central nervous system, it may be said that the original condition provides a subliminal stimulus for the production of uræmic phenomena; when added to this a comparatively slight extra-renal stimulus may have such an enhancing value that unmistakable clinical uræmia develops. In view of the predominantly nervous nature of the manifestations of uræmia it may be that this description borders more closely on the facts than one might have thought, but this one does not really know; nor is it clear whether the pathogenesis of these mixed cases differs in any great degree from that of true uræmia. It would seem not unlikely that "uræmic attacks" suddenly supervening in the course of chronic azotæmic nephritis may sometimes be of this nature. Temporary gastro-intestinal disturbances may easily arise and might readily act as precipitating causes. As far as one can judge from accounts, convulsions do not seem to occur in the uræmic syndrome of salt deficiency and would help to differentiate cases of eclamptic uræmia which have been mentioned as arising on a similar basis.

Regarding the explanation of the uræmic symptoms in the cases related to salt metabolism, clear pathogenic relations are singularly difficult to trace. Cristau has discussed at length the views of the outstanding French workers in this field, more particularly of Widal, of Ambard, and of Blum. Unanimity of opinion affects only the clinical observations and the laboratory findings, the pathogenic aspects being rather a matter of speculation than of known facts. A most varied collection of symptoms has been attributed to now too much salt retained in the tissues, and then again a deficit of salt. The one reasonable conclusion is that disturbances of salt metabolism are closely bound up with the origin of uræmia, and this is as far as I can happily go. In no case is the chloride metabolism deranged in these cases without there being other complex disturbances as well. The French school has attached significance to the variations in the plasma sodium, and especially to the discrepancies between the values for chloride and sodium. Peters and Van Slyke

state that the results require confirmation before being acceptable. It has been mentioned before that earlier experimentors obtained suggestive results from infusions of hypertonic saline solution, *e.g.*, Herter, also Andrews. The association with acidosis and with varying degrees of disturbance of the mineral salt balance, and probably other abnormal factors, cloud the issue as far as some specific part played by chloride is concerned. The conclusion is strengthened, however, that the true underlying pathogenetic factors of uræmia are, no doubt, complex, the origin being, perhaps, as complex as the clinical symptoms.

An effort has recently been made to account for uræmia following diabetic coma—a rare occurrence—on the basis of changes affecting the salt metabolism.[35]

OTHER POSSIBILITIES

1. "Urinod."—In 1915, Hartman[38] prepared from normal urines a malodorous oil which he called "urinod." It occurred in great dilution, was believed to be a cyclic ketone, and seemed to occur normally in a conjugated form. Administration to various animals and man caused various toxic symptoms, and a fatal ending where large doses were given. It was suggested that retention of this body from impaired excretion might account for some of the symptoms of uræmia. Since no confirmation of this work has ever appeared, no significance can be attached to it.

2. Andrewes' Diazo Reaction.—Andrewes,[2] applying the Van den Bergh test to uræmic sera, obtained a characteristic colour reaction which was positive only in cases of true uræmia in the presence of chronic renal failure. Fatal cases of this type constantly yielded a positive test, no matter what the particular kidney pathology. Hewitt[42] prepared the substance giving the test, and believed it to be a cyclic amine, produced in the gut by decarboxylating bacteria, and important in regard to the symptoms. Rabinowitch[62] contrasted the positive nature of this reaction in true uræmia with its absence in the closely similar cases of other ætiological origin (*i.e.*, pseudo-uræmia), and believed that the substance responsible was the result of an altered state of metabolism. Blotner and Fitz[7] concluded that the substance was non-toxic and unrelated to the symptoms, but of grave prognostic import. This latter conclusion was supported by an analysis of 99 cases in which the test had been positive,[37] while the latest conclusion on the nature of the substance is that it is indican or possibly in part indoxyl glycuronate.[36] Clearly, then, this discovery offers no assistance in solving the pathogenesis of uræmia, but does add one further valuable prognostic sign.

3. In connection with the above substance one may also refer to the results obtained by Becher.[31] The blood of uræmic patients was found to contain an excess of various products of intestinal putrefaction. Besides indican there were phenols, cresols and aromatic oxyacids at least. In these cases the phenols may occur free, unlike in normal serum where they are always combined. Accumulation of these bodies may be quite out of proportion to the degree of azotæmia. Becher has pointed out a resemblance between the clinical picture of phenol poisoning and that of uræmia. He has noted that these bodies are absent from the cerebro-spinal fluid until the onset of uræmic coma, and believes that their entry here is of supreme importance in the causation of coma.

4. Trimethylamine has been said to occur in excess in uræmic blood, and on injection into animals it has produced uræmic-like convulsions.[4] There appears to be no evidence that it normally plays any part.

* * *

Having reviewed at some length the chief facts at our disposal with reference to the pathogenesis of uræmia, I come at last to the seemingly inevitable conclusion that a search for one single ætiological factor, "the uræmic toxin," is about as promising of success as a 20th-century quest for the Holy Grail. An attempt has been made to consolidate the results of clinical observation with those of chemical investigation and experimentation, while helpful therapeutic measures, and even certain speculations, have been applied from time to time. However, it is quite obvious that much of the evidence is inconclusive and of little more than suggestive value. Even that most valuable form of scientific investigation, carefully controlled experiment, has failed to furnish indisputable and absolute evidence. One is struck with the belief that a sufficient degree of almost any type of abnormal condition in animals can produce a picture which an ingenious observer can easily harmonise with one of the recognised uræmia patterns. Results on man must be influenced by the subjective factor, which is most difficult to evaluate. The most helpful results have seemed to come from attempts to correlate clinical and laboratory findings.

The results of our inquiries on the question of pathogenesis are not, fortunately, altogether negative and disquieting. Certain positive facts and other highly probable points have emerged. Urea retention, when extreme, may have some direct effect on the nervous system. Acidæmia often plays a prominent role in causing severe respiratory distress. Most important of all, it would seem that in the main uræmic phenomena depend upon

the interaction of a series of disturbances of the fundamental equilibria of the blood and tissues. Various substances are retained in different degrees, others are unduly reduced. It seems clear that the first cause of true uræmia is renal failure, but less certain that the result can be truly characterised an intoxication. The failure of excretion of nitrogenous and other bodies is obvious. Loss of power to concentrate the urine is associated usually with an inability to adhere to the threshold values of the normal kidney and complex disturbances affecting not only the electrolyte pattern of the blood and tissue fluids, but, secondarily, the water balance of the body, are often present. Acidæmia is due in part to impaired renal function, involving the failure of excretion of acid radicals, the loss of fixed base in the urine, and failure of the ammonia mechanism, but it has been suggested that it is aggravated by secondary metabolic disturbances.[69] Failure of other synthetic functions of the kidneys may play a part, at any rate related to the accumulation of phosphates and sulphates.

The complicated variations in ionisable calcium undoubtedly contribute to the symptoms, especially in regard to motor nervous phenomena, but are not alone in this effect. The influence of abnormalities of chloride metabolism must be so bound up with other factors that any separation is quite artificial. In some cases evidence of cerebral œdema has been found post-mortem in true uræmia and this must contribute to the final picture; its origin is, no doubt, secondary to other disturbances mentioned. Other secondary changes probably assume great significance in some cases. The number of possibilities of this sort is endless. For instance, we do not know what effect retention of various substances has on the intermediate metabolism related to this substance. The observation of Levene *et al.*[68] that chronic interstitial nephritics are unable to produce urea from proteins as rapidly as normal implies an inhibitory influence of retained nitrogenous products upon the metabolic processes involved in their production. The fact that the accumulated substances attain values in the tissues almost identical to those in the blood show that local influences could easily be exerted. The possibility of specific toxic bodies, either of metabolic origin or the result of perverted activity on the part of the kidneys or tissues, has been discussed sufficiently, for proof is still lacking.

The chief conclusion that I have reached is that uræmia is, in reality, the sum-total of many direct and indirect consequences of renal deficiency in the broadest sense. The underlying factors are probably not less numerous or complex than is the symptomatology. In some instances the secondary results can be recognised and separated from the true condition, while more often this is not yet possible with certainty.

In conclusion, the hope is expressed that some light may have been shed upon the involved disturbances resultant from renal failure. The imperfections in this treatment of a very controversial subject are manifestly many, but, owing to the conflicting nature of the evidence, a degree of dogmatism is necessary at times in the interests of clarity and brevity even when it is not, in truth, justifiable. Lastly, it is felt that a consideration of this problem assists one to appreciate further the marvellous unity of purpose of the organism, the interdependence of function of the organs, and, above all, the outstanding role played by the "milieu interne." The degree of adaptability to prolonged pathological conditions also attracts attention, but one is struck by its limitation, for eventually a stage is reached beyond which any further change is not only inconsistent with normal tissue functioning, but with life itself.

SUMMARY

1. True uræmia is invariably associated with impaired renal function. It is a clinical condition in which the most characteristic features can be referred to disturbances of the alimentary and nervous systems.

2. True uræmia in its simplest and purest form is seen in cases of suppression of urine, or "urinæmia." Chronic uræmia, which develops in the course of chronic azotæmia nephritis, is almost always complicated by a variety of other changes in the organism; some are compensatory, while others are due to the same cause as the renal damage or are secondary to the renal lesion, but all are alike in that they do not form a necessary part of the picture of true uræmia.

3. Conditions depending primarily upon vascular changes affecting the higher nervous centres form a separate group in regard to the clinical pictures seen and the pathogenesis. Where acute in onset and associated with kidney disease, these have generalised convulsions as their most distinctive feature, and are classified as "convulsive uræmia." Where no obvious association with a primary renal affection exists, the changes are usually of a chronic and progressive nature, perhaps affecting many tissues, and called "pseudo-uræmia."

4. Pure types are often not to be found. Thus convulsive uræmia may develop acutely in the course of a chronic azotæmic nephritis. Similarly, cases originally of a purely pseudo-uræmic nature may be complicated by advancing injury of the kidneys from arterio-sclerotic changes, and termi-

nate as true uræmia. The frequent existence of hypertension in cases of chronic azotæmic nephritis often leads to a number of symptoms which are pseudo-uræmic and distinct from the direct results of the nephritis.

5. Certain symptoms previously regarded as part of the uræmic syndrome can be separated on the basis of their pathogenesis. Besides the group of symptoms comprising pseudo-uræmia, one can distinguish dyspnœa as a result of acidæmia.

6. Chronic uræmia is very variable in its manifestations. It is probably the result of a very complex series of disturbances occurring in the fluids and tissues of the body as a result of the altered functioning of the kidneys. Some of the derangements may produce results which can be singled out, *e.g.*, the results of increased motor excitability consequent upon gross reduction of the serum calcium value. Most of the disturbances do not give rise to obvious symptoms apart from the participation of other factors.

7. The conclusion reached is that uræmia is, in reality, due to a complex of factors, directly or indirectly resulting from the renal impairment, and that variations in the clinical pictures occurring in different cases are determined by variations in the importance of the individual factors comprising the total pathogenic assortment.

* * *

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Muscle Trimmed Impression Technique

A Paper read before the Dental Society, at Guy's Hospital, by B. Machado, Esq.

MR. PRESIDENT and GENTLEMEN,—Second-year students have a considerably smaller field of subjects from which to choose for the purpose of a paper than do the more advanced students. Of the small number of subjects with which I found myself confronted, I chose this somewhat controversial one, as I felt I was in a better position to write on this than on any of the others. Nevertheless, it was not until I had begun that I realised the full extent of my difficulties.

I want to make it quite clear that I am not advocating that the muscle trimmed method of impression taking should supersede plaster, but merely to be used in conjunction with it. Difficult cases are always to be met with, and it is a valuable asset to have this or some other method up one's sleeve, this preferably, as I think it gives the maximum retention for a particular mouth.

Plaster must still hold the premier place for the average mouth as it is quick, accurate and reliable, but it has certain disadvantages, the chief of which are that it does not allow of any compression; also the impression gives no indication as to the fit of the denture, and any small imperfections necessitate the impression being re-taken. Some people object to plaster as being disagreeable, but these are quickly silenced at the hospital.

Composition has several points to recommend its use; with it an impression properly taken represents the soft areas of the jaw as being compressed, and in this manner the desired equilibrium of resistance may be obtained. Plumpers, to build out the contour of the face, can be accurately moulded and reproduced in the negative in the model. It allows the impression to be taken in stages and any minor imperfections to be corrected. The impression can be taken with the mouth closed and under normal biting stress. The plate is an exact reproduction of the impression, and so it is known the extent to which the finished denture will fit; also the bite can be taken at the same time thereby saving a visit. A lack of accuracy of detail may be considered a disadvantage, but while I do not believe this to be of vital importance in full denture work, finer detail may be obtained, if desired, by a plaster wash in the finished impression. Another disadvantage is the time taken, but, when accustomed to using this method, it is by no means as great as might be imagined.

Retention in an artificial denture is in direct ratio to the area of the flat surface covered, and depends also on the exclusion of air from under the denture. The lips and cheeks act as curtain to cover the edge of the plate, and constantly act as barriers to the ingress of air. This is especially true if the alveolar ridge is pronounced and has not been absorbed, and the soft tisuses are attached to it externally at a high level. To ensure the exclusion of air the peripheral border of the impression is rounded and sufficiently thickened to fill the space existing between the lips and cheeks, and the alveolar process; at the same time allowing the impression to conform to the muscles during the movements in speech and mastication. The posterior part of the upper denture is carried into the soft tissues behind the hard palate, and the lower extended as far into the soft tissues behind the former position of the last molar, the retromolar triangle, as possible. These soft tissues offer the opportunity of having the contact of the denture's margins thereby sharply accentuated, which will serve to maintain contact and exclude air at these critical points. The tongue and other structures in the floor of the mouth are allowed to trim the impression so that it will be as stable as possible. In many lowers in which the alveolar ridge has almost completely disappeared, and in which the denture rests upon rather soft tissue, good adhesion may sometimes be secured by extending the buccal and labial margins as far outwardly as possible, so that the lips and cheeks may hug them closely and exclude air. A denture made on this plan has a larger baseplate area than is commonly employed. These outer margins must be moulded accurately in the impression; they actually rest on tissues subject to slight movement, but if the adjustment is carefully carried out by repeatedly moulding and re-moulding, the denture from such an impression will exhibit a gratifying amount of adhesion.

The muscle trimmed impression technique was first started by Drs. P. T. and J. W. Greene, the elder of whom was born in 1829, the younger in 1839. Some time after the middle of the last century they both became dissatisfied with the methods of impression taking then at their disposal, and set out to improve them. They eventually gave up practising to teach prosthetics, and taught the method in its different stages of development all over America for a great number of years. In 1909 the elder brother died, and in the following year J. W. Greene published "A Clinical Course in Dental Prosthetics," under the authorship of

P. T. and J. W. Greene, in which he sets forth his technique in lecture form. The method was then taken up by a good many workers, notably of whom was Mr. S. G. Supplee, who effected certain improvements and helped Dr. Clapp, to whom he taught the technique, to write a book, partly on this subject, published in 1913. Mr. Fripp also wrote a small book on the subject, which was similar in its essentials.

A special tray was designed by Greene to suit his work. This was a light tray of aluminium that could easily be cut or bent to shape and was made with a detachable handle. A handle is not really necessary, and when I am using this method I construct my trays without one. If the trays are cast only one thickness of wax should be used and the trays corrected for height and length in the mouth.

Mouths with soft, spongy tissue are specially suited to compression as the need for equalisation of pressure is greater. Difficult cases such as the high-domed palate, the V-shaped and triangular-shaped palates, and mouths where the ridges are excessively absorbed, especially where the soft tissues are attached near the top of the ridge, are indications for the use of this technique.

An examination of the mouth is the first thing to be done, and the correct anterior posterior length of the denture marked with an indelible pencil. Normally this should be on the soft tissues just behind the hard palate, but if the tissues on the anterior alveolar ridge should be unduly flabby, then the denture should be carried somewhat further backwards, into the movable soft tissues if necessary, to prevent being thrown down in biting. This should not cause any discomfort to the patient, as a nausea is not caused by a properly fitting denture extending too far backwards, but by an imperfect fit of the posterior margin of the denture, so that the soft tissues in moving up and down just touch the denture and a tickly sensation is caused, which results in nausea.

The tray is trimmed exactly to this pencil mark, and the posterior margin is bent to lie in easy contact with the tissues from the ridge on one side to the ridge on the other. While the tray is held against the palate with one hand the lips and cheeks are raised with the other, and a mark made on the tray where it is too high or where it interferes with the muscle attachments, so that the patient will not be able to bring any pressure to bear on the tray by lip or cheek movements. The upper tray as thus trimmed should be an eighth of an inch shorter all along the periphery than the finished impression is to be; this permits manipulation of the margins of the impression material where they extend beyond the sides of the tray. Bend the tray so that its margins follow the outer side of the ridge about an eighth of an inch away.

In the same way trim the labial and buccal margins of the lower, so that it cannot be dislodged by the lips and cheeks. Trim the inner margin until the patient on lifting the tongue does not dislodge it, always remembering that the tray is so light that it may be dislodged by a prominent sublingual gland, which would probably slide over the side of the denture without moving it. The tray as thus trimmed may be extremely narrow, but this need not cause any apprehension, as the only function of a lower tray is to carry the compound to place. The trays are now ready for taking the impressions.

Heat a half-sheet of Kerr's impression compound in water at approximately 145° F.; a thermostatically controlled heater is best. The compound should not be overheated, as this spoils its working properties. When the compound has softened, knead it to get it to the same consistency all through, then roll it into a ball, heat one side—the rough side—in an open flame till it sizzles and attach it to the upper tray. The compound is spread over the tray, making a cone in the centre, a depression all along where the ridge will come and a relatively high flange to go up under the lips and cheeks. Do not let the compound extend quite to the end of the tray, and use the smallest amount of compound possible, the smaller the better. The compound is shaped in the tray in this manner to cause it to strike first the centre of the palate, and the labial and buccal sides of the ridge, and flow from both directions to the crest of the alveolar ridge. In this way distortion and displacement of soft tissues is avoided and more perfect impressions obtained.

It is now desired to heat the surface of the compound more than that which lies deeper in the tray, so that the surface shall be in a position to flow easily, and shall be supported by the slightly cooler compound, between what may be spoken of as the "surface layer" and the tray. This is best effected by heating the whole surface over the flame and then dipping the entire tray into hot, but not boiling, water, to equalise the heat and avoid burning the patient, then holding the palatal surface alone in the water. The tray should then be quickly inserted into the mouth, since the compound will be in the finest possible condition for impression-taking. The only object desired at this stage is to get as perfect an impression as possible of the palatal surface, and to get the outer ridge higher than the margins of the impression will be. The tray is pressed home

with a slight wave-like side-to-side motion until the impression is about nearly home, and then pressed firmly upwards, and slightly forwards if the vault is high, in order to press the compound at right angles to the surface of the mouth, at about the pressure the plate is to be worn. Care must be taken not to press too hard, as if the impression is taken at a much harder pressure than the plate is to be worn, the tissues will be distorted and constantly tending to unseat the denture. Holding the tray alternatively with the right and left hands, press the outer ridge of the compound upwards with the finger inside the mouth, so that it will be higher than the margins of the impression will finally be. This makes possible the proper trimming of the margins by the muscles. If the compound is not carried up by the finger the margins may be deficient, escape notice, and much of the value of this method will be lost. It is important to let the compound get thoroughly hard, with cold water preferably, before removal. Remove the impression as gently as possible by lifting the cheeks, allowing it to fall out, and immediately immersing it in cold water. The whole of these movements should be carried out with the least possible delay, and should take but a few minutes.

The impression as it first comes from the mouth is generally too long, and the margins so thick as to distend the tissues, a condition to be avoided. Heat the posterior edge of the impression gently in the flame and cut it with a hot knife to the back of the tray, or to the indelible pencil mark which should have been transferred to the compound. Do the same with the margins, cutting them so that they are still rounded, but only about 2-3 mm. thick, slightly less than one-eighth of an inch, about the thickness desired in the finished denture. These margins should never be cut to a sharp edge, as the sulcus they have to fit is a rounded one. Be careful not to alter or break the margins; if they are broken no effort should be taken to repair them until after the bite has been taken; also if the end of the tray was left slightly exposed it should be left till after that step, when it will be filled with compound. Move the impression into a bite block by fitting a roll of compo on to the underside of the tray. The impression is then laid aside until the lower has reached the same stage.

Form a small bit of compo into a roll about half as thick again as a lead pencil, dry the tray, heat one side of the roll until it sizzles, attach it to the tray and pinch off any excess. As with the upper, heat the surface over the flame, immerse in hot water to equalise the heat and take the impression as quickly as possible. Standing in front of the patient insert the tray, place it a little to the lingual of the ridge, and with a finger in each premolar region press downwards and slightly forwards with a slight wave-like motion and hold it there. The forward motion will force the excess compound to flow to the labial side of the ridge, where it can easily be controlled, and the slightly harder compo near the tray will prevent the impression going too far down and the tray showing through. Ask the patient now to move the tongue from side to side, backwards, and to touch the upper lip with it; she should not push it out any further than this as that would turn up more compo than was wanted. Now place another finger of one hand on the opposite side of the tray, leaving one hand free; with this hand make a quick light massage on the outside of both cheeks to carry the compound well down, remove and make this also into a bite block.

All that is necessary from the bite block is to have a rest to keep the jaws together, to allow the impression to be finished under biting stress, also to leave the hands free. Hence all that is required is to place the bite blocks in the mouth and have the patient close on them, the height or position will not matter in the least. That is all that is necessary, but I prefer to take the correct bite straight away, as it saves time and it is slightly more accurate, as it gives the lips and cheeks in their correct positions. To take the bite the upper block is trimmed to the lip line and the surface of the block make parallel to the line of occlusion and three small notches cut in it, one in front and one at each side. Keep the upper cold, heat the lower and take the bite. Cut any excess compo away and see that the tongue is now crowded by the bite rim. Now proceed to finish the impressions. The margins of the upper have been made higher than was necessary, and unless it is certain that this is so add a small amount of compo all along them from a tracing stick. With the blow-lamp heat the area over which the compound has been added, or just the margin, to a very soft condition, but only to a very shallow depth, taking care to heat only this area. Do one side at a time, or it might be advisable to do half of a side at a time as the compo may harden quicker than it can be coped with.

Insert the impression opposite side first, to prevent the lips crumpling the now soft margin, have the patient close and draw the lips back as in hearty laughter, and push them well out as in the position for whistling; at the same time massaging the cheeks with a circular motion of the fingers so that any excess will be carried downwards below the tray, also to keep the margin from being turned down too much. The patient

will probably make the lip motions more intelligently if she is instructed how to make them before impression-taking, or if the operator make them when he instructs the patient to do them. Do the same to the other side and repeat until no more compo is turned down; the margins should now be the desired thickness, but, if they are not, correct them and repeat the operation.

When both sides are completed the impression should offer considerable resistance to a downwards pull, but will tip fairly easily from the front or sides. If it does not fit well a mistake has in all probability been made somewhere, and the steps should be gone over backwards and the fault traced. With a small amount of water in the impression, insert it in the mouth and make intermittent pressure on alternate sides over the whole ridge. Watch carefully for any bubbles that may appear around the edge; where they do the impression is at fault and must be corrected by adding more compo and re-moulding. If the margins are not at fault, heat the surface of the palate with hot water or steam and re-take. With a reasonable amount of care this should not happen, and if it does it is a comparatively simple matter to rectify.

Now we come to the "post-damming." This is carried out on the soft palate and on the soft areas on either side of the median line of the hard palate, which extend anteriorly a short distance. A small bead of compo is traced on to the whole posterior margin from behind one tuberosity to behind the other, and anteriorly either side of the median line for a distance corresponding to the area of soft tissue. The whole of this area is made soft with a blow lamp, the impression quickly inserted and the patient instructed to close and swallow several times. The patient automatically bites and carries the tongue to the roof of the mouth during swallowing; these actions drive the softened compound into firm contact with the tissues. The finger is then passed lightly over the posterior edge and the impression held there until it cools. This operation is repeated until the added compo blends with the compo of the palate.

Now test the impression, and it should not only resist a downwards pull, but offer very considerable resistance to a tipping force. If the impression can be tipped with the tongue, it is too short and not imbedded deep enough in the soft tissues. If the impression drops when the mouth is wide open, it is too high in front or too far back on the dilating soft palate. Warm the whole of the periphery in warm water, and in the region of the tuberosities on the buccal side with the lamp, so that it is soft without changing form; insert and ask the patient to close and bite firmly, so that the masseter will muscle trim the buccal margins in this region. At the same time gently massage the whole periphery; this massage is not to carry the compo either up or down, but merely to conform it to the tissues and only light massage is necessary. The upper is now finished all but the "plaster wash," and the lower may now be proceeded with.

Treat in exactly the same way as the upper, warming one side at a time and using the laughing and whistling movements with the mouth closed. Heat the lingual side and, if the patient is sufficiently intelligent, ask her to press the compo against the ridge with her tongue. If she is not, then this must be done with the fingers, but very gently, and the impression cooled under compression or it will spring away. Cut to the right thickness, very thin on the lingual side, add a small amount of compo in the region of the retromolar triangle, get this soft and have the patient bite down hard on the impressions. Do this until the added compound has blended; then warm the whole periphery, especially the posterior buccal margins, and have the patient again bite down, and exert firm pressure to allow for the masseter and gently massage the whole periphery to conform it to the ridge. In might be advisable to test this for fit with water, as was done with the upper.

To take the "plaster-wash," mix some plaster to a creamy consistency, run some over the whole of the palate and splash it out, then add a very small amount along the median line. Wipe off the plaster from the whole periphery, insert and press home with a slight side-to-side movement to allow the excess in the centre to run to the sides. No plaster should overflow unless an excess was added, and should it do so it can be wiped away. Allow to harden thoroughly and remove gently, when it will be seen that the plaster is thicker in the soft areas of the mouth; the periphery should be free from plaster, if not, remove and use only the compo edge. The lower is somewhat more difficult to do since the plaster cannot be confined so well, but this step is not as necessary as with the upper, as the lower has very little, if any, fine detail to copy. Do much the same with this as with the upper; here again the compo edges only should be used. The impressions should be poured immediately and, if they are used without the "plaster-wash," poured dry.

Some cases, like the very flabby mouth, while being theoretically very suitable for compression, practically are the reverse, as the tissues may be displaced as well as compressed, and here either of two procedures are adopted. Either cutting out the compo over the flabby areas and securing an

impression of these in the "plaster-wash," or taking a primary impression in plaster in a standard tray, to extend just over the ridges and to this making a dead-fit vulcanite tray. This vulcanite tray is filed to size and compo traced on the sides and the whole procedure gone over. Besides being longer, this is more difficult, as it takes a certain amount of experience to know when enough compo has been added. The tray can be cut down and used for the try-in and discarded, or the teeth added to it with vulcanite, but I do not recommend this latter step as it is both difficult and looks patchy, besides being a double vulcanisation.

Compo is admirably suited to certain cases, such as the palateless upper denture and mouths where six front teeth are left standing alone or where one or more isolated teeth remain, such teeth being of no use for retention; this applies more to the upper than the lower. In the case of the palateless upper the palate of the tray should be cut out one-eighth of an inch shorter than the finished impression is to be. The impression is taken and the compo is left for this one-eighth of an inch outside the tray and the remainder of the impression finished in the usual way. "Post-dam" this by adding a small amount of compound to the posterior part of the impression over the soft areas and, heating this and the whole free margin of one-eighth of an inch, have the patient close, swallow and press the tongue firmly against the free margin, keeping the pressure until the compo has cooled. This pressure will secure an airtight fit without sufficient pressure to cause absorption. Such a denture should be almost as difficult to dislodge by a straight downwards pull as an ordinary denture, but will tend to tip more easily. In a high vaulted mouth this procedure may be of advantage, for, as a rule, little retention is secured from this part of such a palate, and it is said that, once a patient has worn such a denture, she will never go back to the old type. Let us take the instance of an upper second or third molar standing for the other case; it can be of very little if any, help to retention while tending to destroy the seal. Compound here will give a slight compression around the tooth and a perfect fit on the tooth that need not be touched when the denture is inserted; also the fit of the denture is known. A tray is made either to miss the tooth or to run just clear of the surface the denture will fit; the latter is the better. Take the impression and, in the one case, cut away any compo from around the tooth and in the other cut it away only where the finished denture will not fit the tooth; finish in the usual manner and test for fit. If this be satisfactory, take a plaster impression of the tooth in a small tray with the compo impression in position, remove the plaster and then the compo, and fit the two together outside the mouth. With the six fronts only the lingual surface of the teeth should be taken in the compound with the palate. The labial surface may be obtained with a compo strip or plaster.

Sometimes it is found that a finished denture does not have sufficient retention, regardless of the original impression technique, and it is desired to re-make it. If the palate is an accurate fit, the sides of the denture can be filed down and the denture regarded as a dead-fit vulcanite tray. If the palate is not an accurate fit, a plaster-wash can be taken in it, and thus more than half the work of the re-make will be saved.

I am not suggesting, by any means, that this method is a panacea for the ills of impression taking, but from the results obtained it is well worth the extra time and care expended, and thoroughly deserves its place in the prosthesist's repertoire.

Correspondence

"Derby Day Collection"

To the Editor of the GAZETTE

SIR,—Having assisted to collect for the hospital at London Bridge Station on Derby Day, I feel that a few suggestions as to the general conduct of the campaign might be helpful and lead to a more profitable result.

What must be the feelings of a passenger who, on arriving at London Bridge, is confronted by a crowd of students, who, raising an inferno of noise, line up in numbers round the platform exits with a "money or your life!" attitude? Passengers indeed run the gauntlet, and many must resent this treatment. Loss of money and of goodwill to the hospital inevitably follow.

May I suggest the following remedies?

1. That students should not compete against each other for the furtherance of their individual collections, but should work for the common good. Competition leads to crushing at the barriers.

2. That noise reminiscent of a hospital "rugger" final should not be indulged in. The distribution of the collectors renders the uproar far more than adequate for drawing the attention of would-be donors to the cause.

3. That a person of responsibility, not necessarily a student, should be appointed for the organisation and control of the campaign. His duty would be to prevent undue massing round platform exits, and to encourage individuals to remain in one position rather than to stampede from place to place in competitive manner.

I am aware that notices have already been issued requesting collectors not to crowd round the barriers, but no heed appears to have been taken of these.

Yours, etc.,

"Riseden," Wadhurst, Sussex. H. M. KELSEY.

Erratum

To the Editor of the GAZETTE

SIR,—In an appreciation of Dr. Higgins and some of his old friends in the *Guy's Hospital Gazette*, I wrote: "Like Brickdale, he died in the Roman Catholic faith." Mrs. Fortescue Brickdale writes to me saying her "husband was true to his Church and died in the English Church and was an Anglo-Catholic."

I shall be obliged if you will permit me the correction, and I tender to Mrs. Fortescue Brickdale and her family my regret for my error.

Yours, etc.,

36, Dean Road, Willesden Green, N.W.2. RICHARD GILLBARD.

Hospital Information, etc.

Notice

The Adrian Stokes Memorial Fellowship

Applications are invited for nomination to the Adrian Stokes Memorial Fellowship. The Fellowship is open to duly qualified medical practitioners or graduates in Science in Pathology or Bacteriology.

Applicants must not be more than 30 years of ag and must be anxious to carry out further study in Pathology or Bacteriology in any of their branches.

The Adrian Stokes Memorial Fellow is required to carry out this study during a period of not less than six calendar months in his year of tenure, at a University, School or Hospital or other institution, subject to the approval of the School Council, except the School in which he has received his medical or scientific education. The Fellowship is of the value of approximately £300.

Applications for nomination to the Fellowship must be lodged with the Dean, Guy's Hospital Medical School, London Bridge, S.E.1, not later than June 30th, 1932.

Pass List

LONDON UNIVERSITY.
THIRD M.B., B.S. EXAMINATION FOR MEDICAL DEGREES. May, 1932.

J. B. Blaikley
J. Carlton
S. Leff
H. G. McComas
L. K. Robson
S. A. Scorer
A. G. Signy
S. J. Wheeler

GROUP I only.

W. H. Bradbeer
G. Gilchrist
R. Granvill

GROUP II only.

G. N. Carrell
K. S. Southam
J. L. Woodhouse

ROYAL COLLEGE OF SURGEONS OF ENGLAND.
FIRST PROFESSIONAL EXAMINATION FOR LICENCE IN DENTAL SURGERY. May, 1932.

PART I.—Dental Mechanics.

R. S. Cook
M. Bledin
W. J. Drummond
C. B. G. Elstob
K. E. J. Fletcher
D. A. G. Greensted
E. E. H. Sampson
R. A. E. Williams
A. G. Heberlein
J. H. Kendall
J. B. Knight
B. Machado
E. J. Parks
D. Raubenheimer
J. L. Thompson

PART II.—Dental Metallurgy.

T. E. Carr
J. J. Gaterell
W. B. Hubbard
T. D. H. Ridsdale
K. C. Baker
D. A. Godfrey
W. C. Kendrick

PART IIIa.—Anatomy and Physiology.

D. Raubenheimer
J. W. Turner
H. G. Hexter
W. F. Leuner
V. Rattee
E. R. L. Shrimpton
W. C. Kendrick
W. J. Drummond
R. G. Hunt
E. Nelson
J. A. T. Rowlett

PART IIIb.—Dental Anatomy and Physiology.

F. Stevens
S. N. Tinkler
N. Burch
E. O. Clough
C. H. James
E. H. Musgrove
J. H. Pitman
H. G. Poyton
A. F. Town
J. H. Thompson
R. Chartier
W. A. Denney
K. E. Lawrence
D. Lennie
C. S. Pitt
A. State

SOCIETY OF APOTHECARIES OF LONDON.
FINAL EXAMINATION. April, 1932.

Surgery.

*F. Crowther
G. A. Dingemans
*J. Tudor
*L. G. Yendoll

Medicine.

*J. Tudor

Forensic Medicine.

R. C. H. Ensor
*J. Tudor

Midwifery.

*J. Tudor C. H. Fagge H. B. Thornton

May, 1932. *Midwifery.*

V. Constad.

* Now holds Diploma.

Change of Address

F. L. Hossell, L.D.S., R.C.S. (Eng.), Derwent Lodge, Uckfield, Sussex.

B. G. Scholefield, F.R.C.S., Wargrave House, St. Owen Street, Hereford.

R. E. Williams, L.M.S.S.A., 136, Leytonstone Road, E.15.

Birth

ROWBOTHAM.—On May 19th, 1932, to Evelyn Lucy, wife of Stanley C. Rowbotham—a son.

EDS. { J. S. B. G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

THE usual placid atmosphere of the Residents' room has been somewhat ruffled recently by a disquieting rumour. It is to the effect that a scheme is under consideration for the appointment of resident anæsthetists. These officers, it is suggested, will, among their other duties, be responsible for those anæsthetics which until now have always fallen to the lot of the ex-house surgeon.

With the introduction of Surgical Registrars some 20 years ago, the appointment of house surgeon, viewed from a purely practical aspect, was shorn of some of its attraction. Nevertheless, of the many advantages which this office still possesses not the least valued is the opportunity it affords the holder of becoming an experienced anæsthetist.

We cannot help feeling that the transference of the administration of these anæsthetics to other hands would greatly detract from the value of the appointment, converting it into a post in which power of organisation is cultivated to the exclusion of technical ability. Present and future house surgeons would be glad to learn that this rumour in common with so many of its fellows, is entirely groundless.

▭

DURING the past few weeks the privilege granted to students and residents of the use of the Nurses' Swimming Bath has been sadly abused. It is, perhaps, not generally known that the Swimming Bath belongs to the Nurses, and that it is only through their generosity and courtesy that we are able to enjoy the pleasures that it affords.

It is, therefore, all the more regrettable that on several occasions in recent weeks damage has been done to the baths on students' days. The water has been polluted, making necessary its emptying and refilling, and the clock has been broken. Such behaviour is certainly not worthy of a medical student, and it has been suggested that the damage has been done by people who have no right to use the bath. This privilege is extended to students and residents only, and the use of the bath by Hospital employees and others is strictly prohibited.

We feel that students and residents can help to show to the Nurses their appreciation of the privilege extended to them by always endeavouring to restrict the use of the bath to those of their own number and by avoiding such unnecessary damage as has occurred in the last few weeks.

▭

SITUATED as it is in this scarcely salubrious neighbourhood, Guy's is particularly fortunate in having an open space in its midst. This Park, though it makes admirable provision for the passage of an idle hour beneath the solar rays, is inevitably deficient in the privacy and tranquility essential for open-air study. There is, however, one retreat which is possessed of both these qualities, so eagerly sought after by the more industrious College dwellers. We refer, of course, to the Theatre balcony. This lofty site has for many years provided these sun-starved individuals with an opportunity of combining the perusal of medical literature with the absorption of sunlight in its natural form.

Until quite recently there has been one great drawback to indulgence in this beneficial pastime, namely, a lack of seating accommodation. Now a benevolent authority has provided an abundance of chairs for all who wish to satiate their thirst for knowledge in this unvitiated atmosphere.

We should like to express our gratitude to those responsible for this welcome addition to the amenities of this ever-popular retreat.

▭

WE should like to draw attention to two important functions which are to take place in the near future. They are the Ladies' Association Ball, to be held in the Great Hall of the British Medical Association on July 1st, and the Guy's

Gala and Motor Race Day at Brooklands, on July 2nd. Both occasions are being organised for the purpose of raising funds for the Hospital, and Guy's men, both past and present, can perform a service to their Hospital, not only by coming themselves, but also by bringing their friends. We can only hope that the efforts of those engaged in the organisation of these events will meet with the success that is deserved.

WE should like to congratulate Professor C. S. Gibson, O.B.E., M.A., F.R.S., upon whom has been conferred the degree of Sc.D. (Cantab.). This is a particularly noteworthy achievement, for the number of people who have taken this degree is very few.

WE are able to announce that a Guy's Hospital Dental Pharmacopœia has now come into existence. The Dental Committee feels that it will be of very great service to old Guy's men, and copies may be obtained from Messrs. Grattan, 21, Borough High Street, for the modest sum of one shilling.

ON Thursday, June 16th, the Fison Memorial Lecture was delivered by Professor D'Arcy W. Thompson, C.B., F.R.S., D.Litt., on "The Place of Anatomy among the Sciences." Professor Sir Arthur Keith, M.D., F.R.S., was in the Chair. We hope to publish the address in the next issue of the *Gazette*.

WE regret that in the last issue of the *Gazette* we omitted to congratulate Dr. Russell J. Reynolds, who was awarded the C.B.E. in the recent Birthday Honours List.

WE should like to draw attention to the article on Regurgitation Renal Colic published in this number. The subject matter is both interesting and original, and we are indebted to the author, Dr. Bransford Lewis, of St. Louis, U.S.A., for his courtesy in placing his paper at our disposal.

Obituary

DONALD JOHN CLARKE

THE untimely death, as the result of septicæmia, of Donald John Clarke, at the age of 21, on 9th June, 1932, came as a great shock to all who knew him. He had been with us four years, and during that time his many friends at Guy's recognised amongst his sterling qualities a loyalty in friendship and a retiring, shy disposition. His zeal at work was matched only by his modesty in manner.

Educated at Reigate Grammar School, he gained a scholarship to Guy's, and in the short time he was here showed promising signs of future distinction. On Presentation Day of London University this year he was formally robed as an Honours B.Sc. in Physiology.

However, his interests were not confined to work alone, for he devoted his spare time to a wide range of activities at Reigate, where he distinguished himself at rugger, tennis, amateur theatricals, and by his musical talents. His popularity was evidenced by the large gathering at his funeral (on 13th June), which we had the sad privilege of attending.

We offer our deepest sympathy to his parents, especially as Donald was their only child.

The Treatment of "Functional" Menorrhagia

A Post-Graduate Lecture delivered June 6th, 1932, by Frank Cook, Esq., Obstetric Surgeon to Guy's Hospital

THE term "functional menorrhagia" is commonly, though somewhat loosely, applied to the various types of excessive menstruation that are not attributable to tangible pathological lesions of the uterus or adnexa. These cases are numerous and interesting. From a clinical point of view they may be roughly grouped in accordance with the extent of the menstrual loss. Such as have led to a marked degree of anæmia obviously demand serious consideration, and possibly drastic procedures. Others impose inconvenience rather than severe constitutional strain, and these may respond to palliative measures. A further practical subdivision of therapeutic and physiological importance relates to the age of the patient. There are the menorrhagias that herald the impending menopause; there are the menorrhagias of younger women of the child-bearing age; and there are the menorrhagias of puberty.

In women of middle age the problem of treatment is comparatively simple, as the more drastic

measures are not contra-indicated on physiological grounds in cases where the loss is severe. Until recently there was a general tendency to attribute menorrhagia at this age to " chronic metritis " or " fibrosis uteri," particularly in multiparous patients, and not infrequently in association with retroversion. Although uterine abnormality undoubtedly plays a part, we have learnt that there is a factor of ovarian and pituitary dysfunction even in this class. However, for practical purposes we can safely and reasonably regard the menorrhagia of middle age as a clinical entity, once pathological lesions have been excluded by careful examination. This being so, treatment will essentially depend upon the degree of anæmia.

There is one real difficulty, and that is to forecast the probable age of spontaneous menopause in any particular individual. Radical measures are obviously unjustifiable in cases where Nature is about to solve the entire problem; but as a matter of clinical experience, menopause generally occurs later than usual in women who are subject to menorrhagia. Therefore, in the face of anæmia and other secondary constitutional symptoms, effective treatment should not be withheld on account of the patient's age—be it 45 or even 50. Once a considerable degree of secondary anæmia has become established, the period of convalescence is inevitably long and tedious, even after the loss has been completely arrested. In mild and borderline cases, we may reasonably attempt to mark time by means of curettage, ergot, etc., pending the natural menopause; and thereby hysterectomy or the induction of artificial menopause by other means may be avoided.

Radical treatment implies hysterectomy on the one hand or radiotherapy on the other. The former inflicts comparatively little physiological and constitutional disturbance; the latter obviates the operative risk, however slight, that hysterectomy inevitably imposes. Although experience has taught us that the constitutional effects of an artificial menopause induced by radium or X-ray therapy are by no means as severe as we had previously been led to believe, we have to recognise that ovarian function is necessarily impaired thereby, and that this influence may occasionally lead to unwelcome results—particularly in women of indifferent mental balance.

It is my considered opinion that, where radical measures are definitely indicated, hysterectomy is preferable in cases of " good surgical risk." There is no object in performing *pan*-hysterectomy unless the cervix is considerably lacerated or eroded. Subtotal hysterectomy is less liable to operative and post-operative complications. The chances of subsequent carcinoma of the remaining cervical stump have been grossly over-rated. On the other hand, *pan*-hysterectomy is by no means free from risk, particularly in the hands of those who are not skilled gynæcological surgeons.

Where operation is contra-indicated, we have to choose between radium and " deep " X-ray therapy. The experience of those who are unbiassed tends to show that the latter is preferable. No anæsthetic is required, and the adjustment of the dosage is more satisfactory. It must be recognised that the effect of a given dosage of intra-uterine radium largely depends upon the distance of the ovaries from the uterine cavity—a variable factor. Where there is, however, any question of an intra-uterine neoplasm, and where diagnostic curettage is indicated on that account, it will obviously save trouble to apply radium at the same time. Should the dosage subsequently prove insufficient, it can be reinforced by a modified X-ray exposure at a later stage.

In younger women of the child-bearing age functional menorrhagia presents problems of greater therapeutic difficulty, and, incidentally, of greater physiological interest. Artificial menopause is obviously contra-indicated, unless serious menstrual loss has failed to respond to all other measures.

The majority of these cases are essentially due to an impairment of endocrine balance, and particularly to ovarian and anterior pituitary dysfunction. Admittedly the thyroid and other glands are to some extent responsible. But so far as the thyroid is concerned a difficulty has arisen on account of the diametrically opposed result of two comparatively recent series of research statistics. This and other considerations lead us to believe that the essential factors are to be sought in physiological aberrations of the ovary and anterior pituitary gland.

Clinical experience, supported by experimental evidence, strongly suggests that menorrhagia of this type is not infrequently associated with disharmony and repression of sexual function, whereby, *inter alia*, ovulation and maturation of the corpus luteum are impaired. For obvious reasons it is not always possible to prescribe effective physiological treatment on these lines! But in many cases we can attain a satisfactory solution by prohibiting such unnatural and harmful forms of contraceptive procedure as coitus interruptus. There are now available various contraceptive measures that permit of the proper exercise of sexual functions and are physiologically harmless (if not absolutely reliable); on the other hand, there are cases in which pregnancy is undoubtedly beneficial and not impracticable.

In some cases unfortunately, for social and other reasons, a normal sexual life is impossible of attainment. In these we have to seek therapeutic adjustment. Hypophyseal and luteal hormones are not as yet readily available for clinical purposes, on account of their instability. (Œstrin is the only sex hormone at present obtainable in a chemically pure form.) Although it has been suggested that the degree of concentration of a single anterior pituitary hormone determines the nature of its resultant phenomena, the bulk of the evidence indicates that the gland secretes at least two hormones which are to some extent antagonistic. One is the œstrogenic hormone (Prolan A); the other is the luteinising hormone (Protan B). *A priori*, it is probable that of these the therapeutic requirement in cases of functional menorrhagia is represented by the latter, the luteinising hormone. Clinical results in this direction have been most promising, but hitherto they have been limited by the restricted and somewhat unreliable supply of the necessary agent. It is, however, along these lines that we may reasonably hope to solve a majority of the problems under consideration.

Temporary sterilisation, or rather transient menopause, has frequently been effected by means of X-rays and radium. There are two objections to this procedure. In the first place, the dosage is not easy of adjustment, as it depends upon various factors. Too small an exposure may actually accentuate the menorrhagia; whereas too large a dosage may produce permanent menopause, which at an early age is undesirable. Nevertheless, a serious degree of prolonged menorrhagia may demand drastic remedies in spite of all other considerations. The second objection concerns the possible fate of the future offspring that may be conceived after a period of temporary sterilisation. It is not unlikely that the actual ova are affected by the rays, and, indeed, there is experimental evidence to support this view. It is to be noted that congenital defects are not necessarily manifest in the immediately succeeding generation. A defect is a recessive character according to Mendelian law, and on that account it is liable to appear in the *second* generation. This is a point that demands serious consideration in these days of radiological enthusiasm.

Curettage in this type of case is always a gamble; it is rarely effective. Calcium, ergot, etc., are usually prescribed, and they are occasionally beneficial.

Subtotal hysterectomy is less mutilating from a physiological point of view than a permanent radiological menopause, and on that account it is preferable where radical measures are really indicated. *Partial* hysterectomy has been successfully applied; but it is difficult to gauge the exact amount of the uterus to remove. From time to time serious degrees of menorrhagia occur even in cases where an ordinary subtotal hysterectomy has been performed. Partial resection of the ovaries is open to the same objection, and menorrhagia has frequently been known to continue in spite of the removal of one ovary and the larger portion of the other.

The menorrhagias of puberty are the least understood and the most difficult to treat. Fortunately, resolution is spontaneous in the large majority of cases, after a varying interval; but the condition may continue for some years and a profound degree of anæmia may result. In this type of menorrhagia above all others radical procedures are to be avoided. The usual palliative measures may be reinforced by repeated blood transfusion, but it is in the direction of glandular therapy that we must hope for success.

A whole vista of clinical research awaits the effective preparation of those extracts we so anxiously require.

Regurgitation Renal Colic

By Bransford Lewis, Esq., M.D., B.Sc., F.A.C.S., Professor of Urology, Medical Department, St. Louis University, St. Louis, Mo.

THE profession has long recognised a large number of causes for the production of renal colic and has sought to determine which was the particular factor present in given cases of that malady. It logically reasoned that recognition of this cause would readily lead by its removal to the prompt release of the patient from the colic. Among the causes listed are: Stone (the most frequent of all), ureteral stricture or adhesions, movable kidney and kinked ureter (causing Dietl's crises), aberrant renal vessels obstructing the ureteral channel, renal congestion, perinephric abscess, menstrual disorders with hysteria, cicatricial bands, aneurysm of descending aorta, affections of gall bladder and appendix, vesical calculi or new growths, seminal vesiculitis, ureteritis, urinary tuberculosis, excess of uric acid or oxaluria. These and additional causes are named by Henry Morris, Casper, Thomson Walker, Francis Kidd, David Newman, abroad, and by Guiteras, Ballenger, Chetwood, Cabot, Young, Victor Pedersen, Henry Morton, Green and Brooks and others in this

country; but urinary regurgitation receives mention by none of these authors as a cause for renal colic. In other words, it has hitherto held no standing; has been totally unrecognised as a cause of renal colic.

If in listing the various causes of abdominal pain we should fail to recognise appendicitis, and, further, should fail to diagnose and logically treat appendicitis when present, an analogous situation could be said to exist. Would physicians committing such an oversight or error be supported or condoned in it?

It is generally recognised by the profession that there are numerous instances in which renal colic occurs, sudden and severe, perhaps repeated many times in months or years without a cause being discovered. Kelly and Burnham have found records of over a hundred operations being performed, nephrectomy among them, for the relief of renal colic and yet without any cause being discovered—and without relief of the pain in many such cases. Is it not time that *all* of the causes of renal colic be known, recognised respectively as they occur and lead directly to appropriate measures, such as give not only temporary relief but permanent?

The history of such cases as are under discussion ("stone colic without stone") is frequently as follows: An apparently healthy individual is suddenly stricken with agonising pain in one or the other kidney,* the suffering being so great that he may roll on the floor or fall in the street, and the demand for morphine cannot be denied. The natural impression is that of stone plugging the ureter, so the physician watches for the passage of a stone as the attack wears off, or has his patient radiographed for the detection of the stone that may still be retained. But no stone passes and none is made evident by X-ray, or by ureteral catheterisation or any of the other tests applied. Diagnosis is only presumptive, based on a guess of one thing or another, one guess being as good as another. After a period of watchful waiting with no additional evidence being elicited, the case is thrown into that limbo of failures called "idiopathic"—unexplained, unsatisfied and unrelieved, so far as permanency is concerned. The patient may experience a repetition of his attack within a week or month, and for as long as the underlying cause goes unremoved. The situation is scarcely creditable to the profession and urgently demands a better understanding on its part, as well as a better and more enduring return for its services.

The author is convinced that he has solved the problem, at least for a large proportion of such cases. He has studied the subject for the past 20 years, during which time he has observed 30 odd cases presenting the phenomena described, some with original attacks, others with repeats of many times, in which he has identified the causative factor as *a well-defined obstruction at the neck of the bladder*. Removal of this obstruction invariably has resulted in a cure of the patient and freedom from renewed attacks for as long as the obstruction has been removed or controlled.

A physician, for instance, had suffered for *over 15 years* from recurrent attacks of renal colic, so severe that morphine was many times required for relief. He was referred to the writer for removal of the stone that was assumed to be present. Comprehensive examination failed to disclose any evidence of stone at any point in the urinary tract, but did show fibrotic contracture and obstruction at the vesical neck with two to four ounces of infected urine always present after voluntary urination.

Dilatations with the Kollmann dilator were used, together with measures for disinfection. Urination was improved, the pain was relieved and there was no recurrence of the colic during the following *ten years* through which he lived.

The connection between obstruction at the vesical neck and renal colic was at first ascribed to reflex nervous influence. Latterly, since it has been demonstrated* that even a moderate amount of intravesical pressure (8 to 10 mms. of mercury is capable of overcoming the resistance of the ureteral valvular orifices and permitting the regurgitation of urine or fluid up into the ureters and kidney pelves, the author has considered this regurgitation to be the physical condition that causes the pain or colic. This belief has been repeatedly confirmed by clinical results.

Definite evidences of obstruction have been found in every case (residual urine in varying amounts after voluntary urination; difficult and retarded or obstructed urination complained of—even complete retention in some instances); and such evidences have been co-incidental with colic attacks. The attacks have been promptly relieved by catheterisation of the bladder and removal of the retained urine. And, finally, recognition and removal of the obstructing factor have invariably resulted in relief from attacks for as long as the obstruction has been relieved or controlled. But, on the other hand, renewal of obstruction has been attended by recurrence of the renal pain, as happened in the following case:—

Mrs. E. T., of Festus, Mo., aged 41, was referred July 27th, 1929. So severe was the pain in the

* Morris, in describing the severity of renal colic, says: "Women have aborted, men have committed suicide, and children have been thrown into convulsions during the fearful agony of renal colic."

* Experimental researches of Graves and Davidoff, Bumpus, and clinical observations of the author and others.

suprapubic and left lumbar regions accompanied by straining efforts at urination, but with complete retention, excepting the occasional passage of a drachm or so of urine under the severest straining, that she entered the hospital on a stretcher. The attack had been in progress since the previous five days. One similar attack had been experienced three years earlier, with almost complete retention for 48 hours.

Catheterisation was extremely difficult because of a strictured urethra, together with a benign growth in the urethra. Fulguration of this growth, followed by Kollmann dilatings, restored normal urination, and as promptly relieved the excruciating lumbar pain. From this time until October, 1930, the patient neglected the follow-up treatment, and then had a recurrence of difficult urination, straining and lumbar pain similar to the previous two attacks, though not so severe. Catheterisation and dilatings of the existing urethral stricture proved as effective for relief as previously, and the patient declared herself willing to pursue treatment as advised for prevention of recurrence.

DIAGNOSIS

The diagnosis of regurgitation renal colic rests on the presence of conditions favouring back-pressure and regurgitation through the ureteral orifices plus the ability to exclude by X-ray and other means the presence of stone in the ureter.

Severe straining at urination with an over-filled bladder, accompanied by severe pain in either flank, should point the way to an examination that proves the presence or absence of obstructed and retained urine (the factors that cause regurgitation colic). When to these positive evidences are added the negative evidences of no stone shadows in radiograms, a strong suspicion of regurgitation colic is aroused, and the remaining requirements for a complete urological examination should be carried out. These processes for urologic diagnosis are direct and clean-cut and at the disposal of anyone equipped for doing such work. And when backed up by the striking and immediate relief afforded by the " therapeutic test " of relief from back-pressure and urinary obstruction by catheterisation, dilation of the neck or removal of a prostate when necessary, the diagnosis is complete, provided that the investigator has excluded the various other causes of renal colic.

PROGNOSIS

So far as the regurgitation colic is concerned the prognosis depends on one thing only, removal of the obstructing factor and keeping it removed.

TREATMENT

Almost the same remark might apply to treatment, except that such obstructions are due to both organic and spasmodic causes which demand recognition and appropriate measures not necessary to recount here.

A case illustrative of an attack from spasmodic obstruction is the following :—

H. K., a trained nurse, aged 25, first consulted me in 1913. After a dinner with champagne and a long automobile ride in which no opportunity was presented for evacuating the bladder, there was acute retention of urine with spasms of straining, accompanied by severe pain that seemed to run upward along the ureter to the right kidney. After repeated unsuccessful efforts at urination, the attack continued until relieved by catheterisation, by which about 20 ounces of urine was withdrawn. Successive similar attacks during the next few days again had to be relieved by catheterisation, and each was accompanied by renal pain incident to the retention. The urine was at first clear, but soon became cloudy with colon bacillus infection.

Urethral dilatings (Kollmann) and irrigations gave prompt recovery and no recurrence.

The author has in previous papers* in 1924, 1925, 1926 and 1932 endeavoured to impress the profession with the desirability of recognising regurgitation colic as a real clinical entity, demanding its own place in diagnosis and treatment, but, whether from his inability to present the case convincingly or other reason, little response or recognition has been given, save in personal conversations. However, a very valuable contribution to the subject was made by Dr. P. E. McCown, of Indianapolis, who, on hearing the paper read before the American Medical Association, presented two X-ray negatives (intravenous urography) showing the actual regurgitation into ureters while the attacks of pain were on. Both of these cases were relieved of their recurrent attacks of renal pain by removal of the cause for urinary obstruction present; in one case prostatectomy was done; in the other, caused by urethral stricture, complete relief followed the passage of sounds and dilators.

Showing how such cases may be recalled in retrospect, Dr. Clarence Martin has just called my attention to his note about a similar condition recorded in a paper published in 1916,† as follows :

" I have in mind a man 40 years of age who gave such a clear history of renal stone as to fool completely three excellent men who relied upon subjective symptoms for their diagnosis. This

* Bransford Lewis : " Urologic Diagnosis for the General Practitioner," *Journal of the Indiana Medical Association*, November, 1924 ; *Journal of the Missouri Medical Association*, March, 1925 ; " Urinary Regurgitation and Renal Colic," *Journal of Urology*, February, 1926 ; *Journal of the American Medical Association*, February 20th, 1932.

† *New York Medical Journal*, No. 3, 1916.

man was suddenly seized with an attack of renal pain of such severity as to require morphine. Then there ensued a period of three weeks with complete freedom from pain. Then he was again attacked as before. There was also neither hæmaturia nor bladder distress. There was also marked testicular involvement during these attacks of colic. The patient was seen in these paroxysms, and each time the diagnosis was renal stone, but the X-ray was repeatedly negative. The patient continued to have these alternating periods of pain and relief until one day several months after beginning of the trouble, he had a slight hæmaturia and noticed diminution in the size of his stream. There was a stricture in the bulb just admitting a 5 Fr. bougie. The canal was quickly dilated up to Fr. 26, and since then there has been a complete absence of all renal and testicular pain."

A few other typical cases may be reported as follows :—

Case 1.—N. E. G., a man, aged 55, a musician, of Granite City, Ill., was referred in October, 1920, by Dr. R. W. Binney of that city. While marching and playing in a parade he suddenly experienced excruciating pain in the side and back, following down the course of the ureter. He fell out of line and was given emergency treatment by Dr. Binney, who at once became convinced that the colic was caused by a ureteral stone in transit. Morphine in considerable and repeated hypodermic doses was required to give even temporary relief. My investigation disclosed the presence of $7\frac{1}{2}$ ounces of residual urine produced by obstruction (contracture) at the vesical neck, and the patient then stated that there had been for months an increasing difficulty in urination, with frequent straining efforts.

Roentgenography with ureteral catheterisation demonstrated the absence of stone at any point as clearly as those agencies were capable of doing, and treatment for relief of the obstruction (indwelling catheter, dilatings and so on) was given at once and permanently relieved the pain. Efficient urination was re-established and retention done away with by Kollmann dilatings and irrigations, which were given with decreasing frequency during the ensuing few months. There has been no recurrence of the pain. I have never seen a more typical attack of renal colic than this patient presented.

Case 2.—A. F. S., a man, aged 55, entered the hospital, January 28th, 1926, complaining of excruciating pain in the left lumbar region that necessitated the giving of scopolamine and other sedatives. Searching examination failed to reveal the kidney stone that was suspected, but did disclose the presence of a contraction at the vesical neck that had been the cause of backward pressure and the regurgitation pain from which he had suffered. At least this was our deduction when the patient was almost instantly relieved by the dilatings given, and, with these repeated from time to time, he has never had an attack since that time, six years ago.

Case 3.—J. F. H., a man, aged 37, of Newark, N.J., while travelling West on a train, September 6th, 1929, was suddenly attacked with severe pain in the left lumbar region that caused him to "double up in agony," as he expressed it. The attack was accompanied by frequency and difficulty in urination and straining that added to his suffering. He was compelled to leave the train and receive treatment (morphine hypodermics) for two days before he could continue on his way West. On his arrival in St. Louis he consulted me, and was sent to the hospital for removal of the suspected stone. He said that two weeks previously he had had a similar attack, but not quite so severe. Cystoscopy, catheterisation and urography failed to reveal a stone, but, on the other hand, gave prompt relief from the pain. With this as a clue, I gave dilatings to a tight posterior urethra, discontinued the use of sedatives and obtained prompt recovery that has lasted to the present time, backed up with occasional dilatings as advised.

Case 4.—A. S., a man, aged 39, of Springfield, Ill., entered the hospital in March, 1928, complaining of acute pain that seemed to begin in the bladder and run upward to both kidneys, but was most severe on the right side. The routine cystoscopic examination failed to reveal evidence of stone, but gave relief from the pain, so it was followed by post-urethral Kollmann dilatings, and the patient has not had any recurrence since, nearly four years.

Case 5.—R. L. R., a man, aged 34, has been under my care for a year or more, with chronic prostatitis and contracture at the vesical neck, with urinary infection that frequently extends to the upper tract. By various measures the residuum has been reduced from four ounces to nothing for most of the time. But attacks of difficult urination occur occasionally, nevertheless.

November 30th, 1930, while experiencing a cold day in Chicago, he was suddenly seized with violent pain in the bladder that seemed reflected into both kidneys. He described his suffering as agonising for the next 24 hours, compelling his return home. On arriving in St. Louis he was relieved by catheterisation and a good stretching with the Kollmann dilator. While examination for a possible stone or other cause was not overlooked and was, in fact, carried out with negative results, our acquaintance with his condition made it easy to arrive at the diagnosis promptly and to give treatment that brought the desired relief.

Medicine in Vienna

By E. H. Rink, Esq., B.M., Ch.B.

AFTER a seven months' stay in Vienna, during which I worked in five different clinics and was privileged to observe the work of such noted professors as C. von Noorden and Otto Porges, I feel that my experiences may be of some interest to others who wish to do the same.

Apart from its medical interests, Vienna has many attractions to offer. In the first place, life is very much cheaper than in England; decent lodgings can be had for little more than a pound a week. There are plenty of facilities for nearly all kinds of sport, and entertainments are cheap and varied. The rest, any enterprising man will find out easily for himself.

I feel very strongly that anyone proposing to spend some months in Vienna should first learn German, if he does not already know it. Most of the medical men speak excellent English, and are generally very willing to explain themselves to those who do not understand their own language, but it is obvious that one can learn far more and see more of what is going on if one can understand German, even without speaking very well. I myself took German lessons during most of my stay, and was very grateful for the results.

For those, however, who do not wish to take the trouble to learn German, or who cannot stay abroad long enough to make it worth while, the American Medical Association presents a short cut. Apart from the facilities of a club, the Association provides lectures and demonstrations in English at most of the hospitals, on every conceivable subject. There are, however, several drawbacks to this scheme. Firstly, like all short cuts it is very expensive, as the fees are on an American scale and must be paid in dollars. Further, by merely attending set courses, one only sees what they want to show one, and one is unable to observe the inner workings of the hospitals, which I found most interesting. The University of Vienna also provides post-graduate lectures and demonstrations in German. These are not expensive, and many of them are well worth attending.

Perhaps the best plan of campaign is to arm oneself with letters of introduction. By this means I was able to attend the ordinary routine work of various departments and see everything from behind the scenes. I found that the members of the medical staffs were, on the whole, very courteous and willing to spend a great deal of time showing me round and explaining their methods.

The work in Vienna is very decentralised as compared to a big English hospital such as Guy's. The various clinics, medical and surgical, each have their own laboratories and X-ray departments, adapted to their particular purposes, and are all in different buildings. This makes in a way for greater efficiency, but it renders co-operation between physicians, surgeons and specialists harder to obtain. Another point of difference that I observed is that the students in Vienna obtain far less practical experience before qualification than they do in England, although they have, perhaps, more theoretical knowledge. There was very little bedside instruction as we understand it in the wards at Guy's, and the students see most of their cases only at lectures, where, naturally, only a few can actually examine them. I might mention that I was greatly impressed by a device which they have in use in the lecture room at one of the large medical clinics. This is a monaural stethoscope attached to a small wireless set with a loud-speaker, by means of which the whole class can listen to a patient's heart or breath sounds. I was rather cynical about this before I actually heard it in action, but later I was entirely converted. The sounds are excellently reproduced, and, after a little practice, one can diagnose a cardiac or pulmonary condition at least as well as with one's own stethoscope. With a class of, perhaps, fifty men, the advantages of this method are obvious.

The University clinic for children, where I spent three months, is a model of what a children's hospital should be. It was built just before the war under the direction of the famous Professor von Pirquet, and has been further improved since. The infants' ward is particularly impressive; it has the atmosphere almost of an operating theatre, and the chances of infection reaching the patients, either from one another or from outside sources, is reduced to a minimum. Owing, no doubt, to the poor housing conditions and extreme poverty of the majority of the working classes, septic conditions of new-born infants are extremely common, and, thanks to their efficient aseptic routine, these are treated quite safely in the general infants' ward. They appear, also, to have an inexhaustible supply of human milk with which to treat these cases, and to this they ascribe a large proportion of their good results. The me-

thods of artificial feeding are also admirable. Rickets, although they call it the "English disease," is a good deal commoner in Vienna than in London, as is also tuberculosis. Joint and bone tuberculosis are extremely frequent, owing to lack of funds they have very little facility for giving these patients prolonged and efficient treatment. Consequently, in the orthopædic departments one sees many operations for late deformities which could probably have been prevented under ideal conditions.

I also spent an extremely interesting time at the "special department for metabolic and dietary disorders," under Professor von Noorden. This is quite a small clinic, with fifty beds and a special "dietary kitchen," and the work is mainly experimental. Chronic rheumatoid arthritis, for example, is treated almost entirely by diet, and the results appear to be at least as good with this as with any other method. They are, perhaps, most successful in their treatment of diabetes, for which disease they have evolved an extremely efficient routine, but the results are also excellent in many gastro-intestinal conditions, particularly chronic gastritis and peptic ulcers. I would advise any physician to pay a visit to this department, where the work is really of great interest and the methods sound, though unorthodox.

In this article I have only been able to mention a few of the things which I found particularly interesting, but I hope I have said enough to show what an extremely valuable and enjoyable time can be had in Vienna, and possibly to persuade others, who are fortunate enough to be able to do so, to follow my example.

Reviews

Henderson and Gillespie's Text-book of Psychiatry. Third Edition. Published by the Oxford University Press (Humphrey Milford). *Price* 18*s.*

THE third edition of this already popular text-book has resulted in considerable expansion. The most important of the new sections is a large one, which deals with the psychiatry of childhood. This constitutes about 50 pages, and, as far as it goes, affords excellent guidance in this most difficult branch of psychiatry.

The chapter on Epilepsy has been elaborated, and a *resumé* of the chief laws which deal with mental disorder is included.

At first it may appear that treatment does not receive due consideration, but it is emphasised that what is really needed is an understanding of each patient as a human being, and actually the most valuable information may be obtained from the clinical records which are a prominent feature of the book. Otherwise the text remains unchanged.

Essentially a book for the student and practitioner, it forms a complete account of modern psychiatry presented in a most attractive manner.

Minor Surgery. By LIONEL FIFIELD, F.R.C.S. Revised by R. J. MCNEILL LOVE, F.R.C.S. Second Edition. Published by Messrs. H. K. Lewis & Co., Ltd. *Price* 12*s.* 6*d.*

IT is difficult to define the bounds of Minor Surgery, but this book contains most of the things one expects to find in a text-book on the subject.

Most students, especially at this hospital, are fortunate to be able to learn minor surgery from practical experience, but to those with fewer opportunities the book should be a real help.

The book is especially to be recommended for a complete and concise chapter on Fractures. In addition, it contains illustrations of those splints which are rarely used, except to baffle candidates at surgery examinations. The chapter on Bandaging is disappointing. The general principles are explained, but there are not enough practical applications.

There are useful chapters on Infection of the Hand, and Peri-Anal and Peri-Rectal Suppuration.

It seems to be a custom for all surgery books to contain a chapter on Asepsis and Antisepsis, which no one ever bothers to read.

This is a book which may be recommended to those doing surgical dresser appointments, and it should not be neglected by those about to take their first surgical examination. To most of us it is more important to know how to open a quinsy than to know the details of a gastro-enterostomy.

W. H. B.

Manual of Bacteriology. By MUIR and RITCHIE, Ninth Edition. Edited by Browning and Mackie. Published by the Oxford University Press (Humphrey Milford). *Price* 20*s.*

THE editors are to be congratulated on the presentation of the ninth edition of this standard work. Since the publication of the last edition, five years ago, "the steady increase

in knowledge in all departments of bacteriology shows no sign of slackening," but in the progress of their revision the editors have added in review only those new facts which have directly contributed to our wisdom. This has entailed redrafting large sections of the text, rearrangement of others and the rigid exclusion of all obsolete and irrelevant matter; this task has been admirably executed, and the use of three sizes of type adequately portrays the relative importance of the matter presented. The manual remains at once a handy work of reference, attractive reading for the elementary student and indispensable to the tyro in the laboratory.

Physical Chemistry for Students of Medicine. By ALEXANDER FINDLAY. Second Edition. Published by Messrs. Longmans, Green & Co., Ltd. *Price* 10*s.* 6*d.*

A SECOND edition of this work is welcome alike to the earnest student and his teachers, for it remains the outstanding attempt to epitomise those branches of general science which are of direct application in physiology and medicine. The whole work has been consistently revised and new chapters added where the growth of knowledge justifies concise generalisation. The bibliography is full and the references conveniently inserted as footnotes, but one feels that so much matter should have produced a slightly longer index. This edition, as the last, will be widely read by those who would not forget science in the whirl of clinical observation and valued by the diligent as a reference manual.

Specific Changes in the Blood Serum. By S. G. T. BENDIEN. Published by Messrs. W. Heinemann, Ltd. *Price* 10*s.* 6*d.*

DR. PINEY'S translation is a clear and concise presentation in English of the basis and inferences of Dr. Bendien's now celebrated work. Those who appreciate the careful recording of precise observation cannot fail to value the matter and presentation of Dr. Bendien's contribution to the study of the phenomena of cancer and tuberculosis. Of the merit of the research it must remain for another generation to judge.

Sport

Cricket

Guy's v. Private Banks

THIS match was played at Catford on Saturday, April 30th, and resulted in a win for the Banks by 8 wickets.

Due to the bad weather the Hospital showed lack of practice, and were dismissed for 73. The only bright thing about the Hospital's batting was a quick 20 by Alexander.

The Private Banks passed this total for the loss of only two wickets, eventually getting 180 for 5 wickets.

Scores.—Guy's, 73: Private Banks, 180 for 5 wickets.

Guy's	
M. Watt, c. Murch, b. Bryan	0
T. D. Ridsdale, b. Blessley	4
G. V. Doherty, b. Blessley	1
J. A. G. Starnes, c. Murch, b. Bryan	13
T. S. Eddy, run out	0
P. C. Alexander, b. Bryan	20
H. Cameron, b. Blessley	10
R. V. Payne, b. Bryan	1
S. M. Whitteridge, b. Fever	15
J. P. O'Shea, not out	0
N. E. Gillham, c. Murch, b. Fever	0
Extras	9
Total	73

Bowling.—Alexander, 1 for 32; Whitteridge, 1 for 16; Eddy, 2 for 16; Doherty, 1 for 15.

Guy's v. Old Leysians

THIS match was played at Honor Oak on Saturday, May 7th, and resulted in a win for the Hospital.

Cameron won the toss and batted first. After the opening batsmen had been dismissed cheaply, Doherty, who made 45, and Cameron, 30 not out, put the Hospital in a good position on a difficult wicket, the total being 141.

The Old Leysians' batting failed badly against the bowling of O'Shea and Payne, the former taking 5 wickets for 9 runs and the latter 5 wickets for 14 runs. An excellent performance.

Scores.—Guy's, 141; Old Leysians, 27.

Guy's	
T. D. Ridsdale, b. Hockin	0
J. A. G. Starnes, b. Hockin	0
G. V. Doherty, c. and b. Whelpton	45
T. S. Eddy, c. and b. Rocyn-Jones	2
P. C. Alexander, c. Masina, b. Alliston	13
G. C. Wright, b. Hockin	21
H. Cameron, not out	30
R. V. Payne, b. Alliston	8
S. M. Whitteridge, b. Alliston	0
J. P. O'Shea, st. Masina, b. Alliston	6
N. E. Gillham, c. Hargreaves, b. Rocyn-Jones	8
Extras	7
Total	141

Bowling.—O'Shea, 5 for 9; Payne, 5 for 14.

Guy's v. Honor Oak

PLAYED at Honor Oak Park on Saturday, May 14th; resulted in a win for Honor Oak by 40 runs.

Honor Oak were put in to bat on a drying wicket and made a total of 166, Nicol being the most successful batsman with 85. This total might have been considerably smaller if all chances given had been accepted.

The Hospital then batted, and after the opening bats had been dismissed, Starnes and Doherty made a useful stand, adding about 50 runs for the third wicket, the final total being 122.

Scores.—Honor Oak, 166; Guy's, 122.

Guy's

G. C. Wright, st. Tobitt, b. Gibson	1
T. D. Ridsdale, c. and b. Maxwell	0
J. A. G. Starnes, b. Maxwell	28
G. V. Doherty, c. Nicol, b. Newnham	22
G. M. A. Brown, b. Henty	14
P. C. Alexander, c. Henty, b. Newnham	17
H. Cameron, b. Henty	1
R. V. Payne, b. Newnham	10
S. M. Whitteridge, b. Newnham	8
J. P. O'Shea, b. Henty	5
N. E. Gillham, not out	4
Total	122

Bowling.—O'Shea, 1 for 37; Payne, 2 for 36; Whitteridge, 5 for 59; Alexander, 2 for 27.

Fencing

REPORT, 1932

LAST season has been a most successful one for the Fencing Club. The first team, under the able and popular leadership of D. H. Irish, fought 15 matches and won 12, scoring a total of 236 hits against 173 Notable wins were those over the Masks, Old Westminsters and Lensbury F.C. (twice). These achievements were crowned by the regaining of the Inter-Hospitals' Cup, which in 1931 had been allowed to wander from its native heath.

The second team fought seven matches and won five, scoring 85 hits against 74.

Coming to individual successes, we note that of D. M. Paterson, who won the United Universities Foil Championship. At the same meeting J. F. Morris was runner-up in the sabre event, and later he won the London University Championship.

The above facts amply demonstrate that the Club is in a flourishing condition, and is readily maintaining its high position in University and Club fencing.

J. R. F.

Golf

Guy's v. West Kent

THIS match was played on Wednesday, May 25th, and resulted in a win for the Hospital by 5 matches to 3.

Results :—

Guy's		*West Kent G.C.*	
H. C. A. Weighell	2/1 1	O. Austrent	0
D. A. Ibbetson	0	W. H. Walker	1 up 1
B. J. Doran (Capt.)	3/2 1	A. D. Spencer (Capt.)	0
W. C. Kendrick	0	L. V. Stone	3/2 1
P. Hanbury	1 up 1	W. S. Wiscott	0
R. B. Sumerling	3/1 1	B. Starmfield	0
F. T. Evans	3/1 1	E. C. Borrowdale	0
F. J. R. Stoneham	0	A. W. Webster	2/1 1

Guy's v. Sidcup

A MATCH was played on Wednesday, June 1st, and resulted in a win for the Hospital by $4\frac{1}{2}$ matches to $3\frac{1}{2}$.

Results :—

Guy's		*Sidcup G.C.*	
H. C. A. Weighell	0	A. M. Johnston	5/4 1
D. A. Ibbetson	4/3 1	K. R. Farmer	0
B. J. Doran	$\frac{1}{2}$	H. S. Allen (Capt.)	$\frac{1}{2}$
W. C. Kendrick	3/2 1	F. Lavence	0
G. O. Jelly (Capt.)	0	J. M. Crabb	3/2 1
P. Hanbury	4/3 1	B. D. Buston	0
R. B. Sumerling	0	H. W. Astell	3/2 1
F. J. R. Stoneham	2 up 1	N. E. Eckhoff	0

Guy's v. North Surrey

THIS match was played on Wednesday, June 8th, and was halved, each side winning 4 matches.

Guy's		*North Surrey G.C.*	
H. C. A. Weighell (4 & 2)	1	H. M. Sanders	0
D. A. Ibbetson (4 & 2)	1	C. H. Carey	0
P. Hanbury	0	R. G. Salmon (2 & 1)	1
B. J. Doran (7 & 6)	1	H. Reeves	0
G. O. Jeley (Capt.)	0	G. M. Wright (3 & 1)	1
T. H. Chignell (2 & 1)	1	R. Moy	0
R. B. Sumerling	0	H. Cameron (8 & 7)	1
F. I. Evans	0	J. H. R. Gaffney (1 up)	1

Guy's v. East Sussex Medico-Dental Society

A VERY enjoyable day was spent down at Hastings on Sunday, June 12th, when we were kindly entertained by the East Sussex Medico-Dental Society. After a good match we were ultimately the winners by $8\frac{1}{2}$ matches to $3\frac{1}{2}$.

FORESOMES

Guy's	*East Sussex Medico-Dental Society*
B. J. Doran & R. B. Sumerling (6 & 5) 1	J. C. Lee & W. Peck 0
W. C. Kendrick & C. B. Elstob .... ½	J. Walker & C. A. Wilson (Capt.) ..... ½
H. C. A. Weighell & F. J. R. Stoneham (4 & 3) 1	I. Chisholm & J. B. Robinson 0
D. P. Stevenson & C. L. Blacklock (2 up) 1	J. Cutler & T. Reed 0

SINGLES

Guy's	*East Sussex Medico-Dental Society*
H. C. A. Weighell 0	J. S. Paterson (3 & 2) 1
B. J. Doran (3 & 1) 1	J. C. Lee 0
R. B. Sumerling (1 up) 1	J. Walker 0
W. C. Kendrick (3 & 1) 1	J. Chisholm 0
C. L. Blacklock 0	J. Cutler (3 & 2) 1
D. P. Stevenson 0	T. Reed (3 & 1) 1
C. B. Elstob (8 & 7) 1	J. B. Robinson 0
F. J. R. Stoneham (8 & 7) 1	C. A. Wilson 0

Guy's v. Cuddington

THIS match was played on Wednesday, June 15th, and resulted in a win for the Hospital by 4½ matches to 3½.

Guy's	*Cuddington G.C.*
H. C. A. Weighall 0	C. H. Haygarth (1 up) 1
D. A. Ibbetson (2 up) 1	H. W. Parker (Capt.) 0
B. J. Doran 0	H. Clayton (4 & 2) 1
P. Hanbury 0	F. Gould-Brown (4&3) 1
F. I. Evans (3 & 1) 1	A. J. Brock 0
R. B. Sumerling (2 up) 1	M. H. Blarney 0
D. P. Stevenson ..... ½	N. Baines ..... ½
F. J. R. Stoneham (3 & 2) 1	W. J. Parsons 0

Hospital Information, etc.

Notices

NURSING NEWS

Guy's Hospital Past and Present Nurses' League

A Re-union Garden Party will be held at the Nurses' Cottage, 30, Dunoon Road, Devonshire Road, Honor Oak Park, on July 6th, 1932, from 3 p.m. to 6 p.m. All Past Guy's Nurses will be welcome.

Trains.—From London Bridge—2.37, 2.53 and 3.7 p.m. From Honor Oak Park—6.27, 6.47 and 7.7 p.m.

Tennis.

R.S.V.P. The Matron, Guy's Hospital, S.E.

STAFF NURSES' DANCE

Sale of tickets and subscriptions, £56 5*s.* 0*d.* Expenses paid, £35 9*d.* 0*d.* Amount paid to the Sir Cosmo Bonsor Memorial Fund, £20 16*s.* 0*d.*

PHYSICAL SOCIETY PRIZES

Beddard Prize, for distinction in demonstration of clinical cases—Mr. M. J. McArdle.

Laidlaw Prize, for a paper of greatest pathological interest—Mr. J. C. Colbeck.

Society's Prize, for best paper—Mr. A. J. Grace.

Papers by Guy's Men

H. W. Barber. (1) Telangiectasia macularis eruptiva perstans; (2) Acanthosis nigricans. *Proc. R.S.M.*, 1932, xxv, 1029, 1030.

A. C. M. Coxon. Two unusual cases. *Brit. Dent. J.*, 1932, liii (1), 710.

G. B. Dowling and L. Forman. Fox Fordyce disease. *Proc. R.S.M.*, 1932, xxv, 1031.

N. L. Eckhoff and D. W. C. Northfield. Results of treatment of injuries about the elbow. *Proc. R.S.M.*, 1932, xxv, 999.

C. H. Fagge. Diverticulitis. *New Zealand Med. J.*, 1932, xxxi, 65.

T. B. Layton. Sinusitis with orbital swelling treated by antral lavage. *Proc. R.S.M.*, 1932, xxv, 1055.

W. M. Mollison. Treatment of suppurating maxillary antrum. *Proc. R.S.M.*, 1932, xxv, 1057.

Change of Address

Dr. J. B. Fairclough, The Green, Featherstone, Yorks.

Dr. M. H. Jacobs, "Rossmore," 57, Eltham Road, Lee Green, S.E. *Lee Green* 5744.

Appointment

H. L. Power, L.D.S., R.C.S. (Eng.), Dental Surgeon Freemasons' Hospital and Nursing Home.

Marriage

STALEY—LITTLER.—On 16th June, 1932, R. C. W. Staley, M.R.C.S., L.R.C.P., L.D.S. (Eng.), elder son of the late Mr. George Staley and of Mrs. Staley, of Bognor Regis, to Sylvia Joyce, youngest daughter of Mr. and Mrs. F. R. Littler, of Felpham, Sussex.

EDS. { J. S. B. G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

IT is with mixed feelings that we view the introduction of a new game to this country, and to this hospital in particular. Here Yo-Yo has spread with remarkable rapidity, involving all classes; ward-maids, patients, students, and even members of the Staff have succumbed to its fascination and have been seen "walking the dog" in the Park and Colonnade.

Such has been the rapidity of its spread that it is difficult to see where the end may be. Perhaps the time is not far distant when sterile Yo-Yo's will be part of the equipment of all operating theatres. The surgeon may then beguile the tedious minutes which he now spends with folded hands waiting for the induction of the patient, in the enjoyment of this profitable pastime.

On the other hand, we feel that it is unfortunate that the arrival of this game should have coincided with the few weeks preceding the Conjoint Examination. From the number of whirling Yo-Yo's and the not inconsiderable danger to which the passer-by is subjected in attempting to walk up the Colonnade steps, perhaps it might not be altogether too pessimistic to suggest that the number of students who usually blossom out into young doctors at this time of the year will fall short of the usual quota.

Yet we would not be too severe on these enthusiasts. For one reason, the accusation of jealousy would, indeed, be hard to refute, and they have their own troubles. The Yo-Yo arm is already becoming manifest, and showing signs of chronicity equalled only by weaver's bottom and housemaid's knee, and who knows what dread lesions may be produced in the years to come?

Yet even as we write the fever is abating, and the figures in the Park on a hot afternoon are once more prone instead of erect.

For our part we are not sorry to see the rapid decline of this craze. We feel that the dignity of the Hospital and the respect which the patients feel towards the students can only suffer by its continuance.

FOR many years the Governors of this Hospital have been anxious to provide a more fitting resting place for the remains of Thomas Guy. Until the present time these have lain in a stone coffin beneath the brick arches which support the Chapel. Recently, shrinkage of the soil placed the foundations of this building in a precarious condition. Immediate underpinning of the structure became necessary if a catastrophe was to be avoided.

Sir Percy Shepherd, a Governor of the Hospital, took the opportunity to place the matter before the Shepherd Trustees, with the result that the Superintendent received a cheque for £500. This amount will not only cover the expense of the repairs to the Crypt, but will also enable the erection of a fitting shrine where Thomas Guy will rest.

It is gratifying to feel that at long last the remains of this great man will lie in surroundings worthy of the great institution he founded.

A VERY enjoyable dance, organised by the Guy's Hospital Ladies' Association, was held on Friday, July 1st, at the British Medical Association House, Tavistock Square.

It was largely attended both by past and present members of the Hospital, including several of the Staff and by many others, and it was generally admitted to be a great success.

The hall is certainly well suited for dancing and comfortably accommodated the large number present, and the music, which was of a high order, was supplied by Pilbeam's Band.

Those responsible are to be congratulated on the success of their arrangements and the very pleasant evening which they supplied.

UNDER the patronage of the Duke and Duchess of York a very enjoyable day's entertainment was provided at Brooklands last Saturday.

It was, of course, the occasion of the Guy's Gala. This much-advertised event fully realised the expectations of the most sanguine. In the presence of a large crowd some very good racing was witnessed, two of the classes being confined to entrants from the Hospital. Comic relief was afforded by a contest staged between a taxi which first saw daylight in 1912 and one of the ultra-modern type. As is so often the case, age and experience triumphed over the impetuosity of youth.

Further interest was added to an already full afternoon by the arrival of the Graf Zeppelin. A bouquet for the Duchess of York was dropped from the giant dirigible.

The organisers of the Gala must feel very pleased with the obvious success which attended their efforts. We trust that they will see fit to make this much-appreciated entertainment an annual fixture.

▭

We are sure that all Guy's men would like to join us in congratulating Sir Charters Symonds on the occasion of his 80th birthday. Sir Charters continues to take a very keen interest in the welfare of the Hospital and the Medical School, an interest much valued and appreciated by all those connected with Guy's.

It is with great regret that we have to record the death of Mr. J. Courtney Wallis, who was a student at this Hospital. Mr. Wallis died on Saturday, July 2nd, following an operation. A memorial service was held in the Hospital Chapel on July 6th.

▭

The *Gazette* Staff has suffered a great loss in the retirement of Mr. J. S. Batchelor from his position as Editor. We should like to take this opportunity of expressing our gratitude to him for all his work for the *Gazette* during the past year.

▭

We should like to congratulate the following on their appointment as " Clinicals " :—

Mr. H. J. B. Atkins.
Mr. H. G. N. Cooper.
Mr. F. J. Curtis.
Mr. M. J. F. McArdle.
Mr. G. A. Miller.
Mr. H. A. Treble.

▭

We would once more remind our readers that the recently issued Guy's Dental Pharmacopœia is now obtainable from Messrs. Grattan, Borough High Street, price 1*s.*, or 1*s.* 1*d.* post free.

Obituary

ARTHUR BAYFORD GUY UNDERWOOD

M.B., B.S.Lond., M.R.C.S.Eng., L.R.C.P.Lond., L.D.S., R.C.S.Eng.

BAYFORD UNDERWOOD, who died at Ventnor on June 14th, was a Dental Student at Guy's Hospital from 1911 to 1913. He had taken the Conjoint Diploma and the M.B., B.S., London, at University College Hospital before coming to Guy's. It was his intention to sit for M.S. in Dental Surgery of the London University, which had recently been established, but the Great War of 1914 prevented this from being accomplished.

Bayford Underwood was the third generation of a family of well-known dental surgeons. His father, Professor Arthur Swayne Underwood, was one of the most distinguished teachers and writers on dental subjects during the latter half of the nineteenth century and the early years of the twentieth. His grandfather, Thomas Underwood, was an original member of the staff of the Dental Hospital of London (now the Royal Dental Hospital). Whilst his great-uncle, Francis Ken Underwood, was Dean of the same hospital.

Soon after the war began Bayford Underwood became Resident Medical Officer to the King George Military Hospital, and, early in 1916, he was appointed a Temporary Surgeon-Lieutenant in the Royal Navy, serving first at the Royal Naval Hospital at Chatham, then on H.M.S. *Diligence*, and finally on H.M.S. *Repulse*, the Flagship to the 1st Division of the famous Battle Cruiser Squadron of the Grand Fleet. On this ship he combined the duties of Squadron Dental Surgeon with those of general medicine and surgery.

In 1920, Bayford Underwood was appointed Sub-Dean to the Dental Department of University College Hospital, and he became the Lecturer in Dental Anatomy and Physiology, thus following his father's footsteps in this branch of professional teaching. He was elected Dental Surgeon to University College Hospital in 1925.

In 1923, Underwood received the appointment of Examiner in Dental Surgery to the Royal College of Surgeons, and he held also an External Examinership to the University of Bristol.

He was a man of much personal charm. Both as a teacher and examiner he was a great success; loved by his students, rarely, if ever, feared by his examinees, and respected by all. Like his father before him, he had a keen sense of humour.

He married, in 1919, Blanche Mitchell, daughter of the Rev. J. P. Mitchell, of Edinburgh, and deep sympathy will be felt for her in her loss.

Bayford Underwood was the author of three well-known text-books: "Surgery for Dental Students" (1912), "Synopsis of Dentistry" (1920), and "Aids to Dental Anatomy and Physiology" (1922). In addition to this, he was a regular contributor to several journals, and in 1922 became the Scientific Editor of the *Dental Surgeon*, a position which he held for ten years with distinction to himself and delight to his readers.

Even after 1929, when, to the dismay of all his friends, he was struck down by tuberculosis, following an attack of glycosuria, he continued to contribute his "Clinical Notes" to the *Dental Surgeon* until quite recently.

His additions to the knowledge of his profession will ensure Underwood a lasting title to fame, whilst in the more intimate circle of his friends he will long be remembered for his lovable character and attractive disposition. It should be placed on record that in Bayford Underwood there resided a combination that is popularly supposed to be rare—he joined the spirit of the scientist with a profound religious conviction.

J. L. P.

Breech Presentation

A Clinical Lecture delivered at Guy's Hospital on Monday, 27th June, 1932, by G. F. Gibberd, Esq., M.S., F.R.C.S.

GENTLEMEN,—In discussing breech presentation from a wide point of view, the most important thing to realise is, first of all, the dangers to the mother, and, second, the dangers to the fœtus. Though the dangers to the mother are not so striking as those to the fœtus, it is a far more serious thing to have a damaged mother than a damaged fœtus.

Taking, first, the dangers to the mother. These, in breech presentation, are entirely due to the difficulties which may arise in the delivery or to the manipulations which are so often necessary to deliver the child. They are, therefore, the dangers of injury and those of infection. Whenever a manipulation is undertaken in a breech delivery case there is, nearly always, some laceration of the lower part of the birth canal, either perineal or vaginal, and in a fair proportion of cases there is a bad perineal laceration involving a tear into the rectum. In fact, difficult breech delivery is the commonest cause of a complete perineal tear into the rectum. Short of that, there are minor perineal lacerations. Or there may be extreme lacerations in the upper part of the birth canal, involving the cervix, and even the lower part of the uterus. There is increased liability to severe lacerations of the cervix. I know of one woman who died through a laceration of the cervix running through into the lower segment, causing a ruptured uterus; she was dead in half an hour. That laceration was due to manipulations, trying to bring down the extended arm. It is true these dangers may be remote.

The dangers to the fœtus are much easier to discuss, because they are more striking; there is nothing more striking than a dead fœtus. So we must discuss the frequency with which the fœtus is born dead in breech delivery. For some years I have thought it my duty to tell the truth about breech mortality, and I am sure you will forgive me for saying it over again. I have brought forward the evidence on which I say that breech-presentation mortality is as high as I have stated.

	Total.	*Stillbirths. Per cent.*	*Neo-natal Deaths. Per cent.*
Uncomplicated breech ..	269	26 (22)	6 (2)
Complicated breech ..	218	43 (56)	9 (3)

	Uncomplicated. Per cent.	*Complicated. Per cent.*	*Twins. Per cent.*
Primiparæ ..	28	57	33
Multiparæ ..	15	49	9

It is difficult to define the term "uncomplicated," because there are hospitals in England which use this term in a wider sense than we use it. Here, if we say we have got a complicated breech we mean it is a case of breech labour in which some other obstetric abnormality, such as placenta prævia, complicates it. There are hospitals at which, if they say they have a complicated breech, it may mean that the woman is a primipara. It is not fair to apply the term for that reason, as there is nothing more natural than being a primipara if you are having your first baby! We will not define "complicated" or "uncomplicated"; you know, roughly, what they mean. The figures I give you were collected in 1931, from the latest available information, *i.e.*, from last year's reports of eight maternity hospitals in England which publish their statistics in the necessary form. And in order to avoid any invidious distinctions between one hospital and another, I may say that Guy's figures are included in these.

You see that in the uncomplicated cases there were 26 per cent. of still-births and 6 per cent. of babies died before they left the hospital. That gives a total mortality of 32 per cent. in uncomplicated cases. In complicated cases the total mortality is 52 per cent. I am not proud of our results, but, to show that we are talking about the same thing, the figures in brackets are the Guy's results for the last five years, so they are a little better than the mean of the eight; certainly our figures are not worse than those for the rest of England.

In complicated breech cases we are considerably worse. We shall not discuss those, because it is hardly fair to blame breech presentation when the fœtus is still-born and when there is placenta prævia.

You will hear, from people who are out to defend a high breech mortality, that it is not fair to compare breech mortalities like that, because if you have a premature fœtus it will come as a breech, and if it is a macerated fœtus it will come as a breech. So we shall probably have an unusual number of unfair fœtal catastrophes in this group. I have taken our own results, and I have only mentioned still-born fresh fœtuses. If a child died in the first week of life, I have assumed it was premature; and if a fœtus was macerated I have assumed it should be excluded. So 28 per cent. of primiparæ and 15 per cent. of multiparæ is the rate which gives you the minimum danger associated with breech delivery.

Now as to the causes of the deaths. Mr. Eardley Holland was the first man in this country to draw attention to the danger of intracranial hæmorrhage as a cause of still-birth in breech delivery, and when he published his researches he suggested that three-fourths of all the dead-born breech babies died from intracranial hæmorrhage; our experience at Guy's confirms that opinion. That leaves us with a fourth of the still-born babies who died from another cause. The other cause which, I think, accounts for all the other deaths is asphyxia, due to compression of the cord. In the old books another cause given was drowning through premature inspiration. According to this, you are asked to believe that when the fœtus is born as far as its trunk, if it takes a premature inspiration, as it frequently does, it inspires a lot of liquor amnii, and so is drowned. And the corollary is to wrap it in a hot towel so that it will not do that. There are two fallacies in that statement. The first is, it is very unlikely that any fœtus can inspire sufficient liquor amnii to drown when its head is tightly applied to the posterior wall of the birth canal; it is difficult to get the new-born fœtus to take a breath of air at all without opening its mouth and pulling out its tongue. The practical demonstration is, that if drowning was the cause of the death, you should sometimes see a fœtus half-drowned, but that I have never seen.

The other fallacy is the futility of trying to stop premature inspiration by putting a hot towel round the fœtus. The reason the fœtus breathes when it is born is, that it has got an accumulation of CO_2, and the part played by cold air is negligible. We must therefore dismiss this towel bogey. There is no harm in having a towel round the child, but if you are not working in the best circumstances, people will hand you a towel which is hot at all costs, sterile if possible, but hot.

Unfortunately, when the fœtus has escaped these dangers there are other possibilities. About 5 per cent. of them have serious injury. The common injury is injury in the region of the upper limb; I put it like that because it is easy to "spot." If you look at a breech-delivery fœtus carefully, you may find it does not use its upper limb, and the cause is Erb's palsy. Occasionally there is fracture at the junction of the upper and middle third of the humerus, sometimes dislocation of the shoulder. It is easy to miss this condition unless you look for it specially, because after breech delivery the fœtus is wrapped up in a towel, and then it does not direct attention to its arm, and afterwards it is dressed up in a lot of clothes, which prevent it moving its arm. Then it is not spotted until the nurse washes it. It is very important to detect the arm injury quite early, because Erb's paralysis, if it continues, is the most serious disability anybody can have; no one can live a normal life with one arm paralysed.

If the cases are treated promptly, recovery is good in a very high proportion of cases. The treatment is to put the arm in the " Israelite " posture—I do not know how the term originated—*i.e.*, with the elbow flexed so that the hand is directed upwards. You can then get the arm back in about a fortnight, and the sling can be dispensed with in a few months. Occasionally there is fracture of the clavicle, but, as a rule, that is not of any real importance.

Fractures of the lower limb are much less common, and they are due to groin traction ; they occur at the junction of the upper and lower thirds of the femur.

The injuries which should specially interest us are the intra-cranial injuries, which, however, have not killed the fœtus. We know these hæmorrhages are found in the post-mortem room, but there must be many fœtuses which have intra-cranial hæmorrhage and yet live. We have not yet any clinical data on which we can base any opinion as to how important that injury is. In Little's disease—the spastic diplegia of children—it was said that the cause is obstetric injury, because if you had to invent an anatomical lesion to account for spastic diplegia you would knock out the cerebral cortex in the Rolandic area. It was said it was due to clapping on the forceps and bruising the brain at the vertex. Post-mortems have shown it is not a bilateral bruising ; it is a sub-tentorial hæmorrhage, which only in a late stage goes over the cortex. So there is no anatomical correlation between Little's disease in later life and intra-cranial hæmorrhage as we know it in still-born fœtuses. I have had a breech presentation in which all the signs of intra-cranial hæmorrhage were present. Physicians agreed that there was blood in the cerebro-spinal fluid. That child became quite normal. I know of another case, in which delivery was by Cæsarean section, and so it could not have had intra-cranial stress, yet that child has developed Little's disease. This is a very good field for research, the following up of cases in which we diagnose intra-cranial hæmorrhage, seeing the cases four or five years afterwards. We might then learn the relative frequency of non-fatal intra-cranial lesions.

The other kind of injury the fœtus is supposed to suffer is injury to its viscera. Dr. Herbert Spencer—before 1900—was the first one systematically to do autopsies on fœtuses in this country, and he described many ghastly injuries to liver, suprarenals, etc., after breech delivery. Probably that was because the waist was caught hold of roughly and so the viscera were ruptured. But our experience at Guy's shows that that danger is remote. In six years I have seen only one case of retro-peritoneal hæmatoma in the post-mortem room after a still-born breech.

I have spent much time speaking of injuries to mother and fœtus because it is important we should realise it, as there is a conspiracy among obstetricians generally to blot out this page on obstetrics ; there are very few obstetricians who will admit the truth in the matter. It is our mission in this world to point out that the mortality is what we know it to be.

We have been told that one can estimate the skill of an obstetrician by his breech mortality figures. Such a statement taunts one, so even if you had a high mortality rate you would not be encouraged to publish it. Thus the obvious treatment becomes prophylaxis ; you must try to prevent breech delivery.

Some say you can turn a breech half-way round and convert it into a transverse, and that by disturbing the attitude you may get a prolapse of the cord. It has been said you may separate the placenta and give an ante-partum hæmorrhage and so kill the fœtus. Those statements are true, but the chances are all remote, and they will not account for, at most, more than 2 per cent. of the fœtal mortality. So there is no valid objection to doing external version during pregnancy in breech cases ; there are difficulties, but there is no objection.

Some say it is silly to do version, because many of them will turn round of themselves. Others have said it is silly to do version because after you have done it the breech presentation may recur, but, of course, that is merely a reason for doing it twice.

The technique of version is simple. You turn the fœtus through an angle of 180°, which means turning through the short axis of the uterus. The fœtus approaches more and more to a sphere as it becomes more flexed. In a breech presentation you get more purchase on the head than on the breech ; therefore if you push the fœtus forward so that it follows its nose you will tend to increase the flexion ; whereas, if you push it backwards, you will tend to straighten the fœtus out and so increase the extension. In some cases you will have failure, and that is because of extension of the legs. Until you are able to disengage the breech you cannot turn it.

There are three ways of disengaging a breech before turning : (1) Put your hands on the abdomen and dig them below the breech, and lift up the fœtus. (2) If that does not succeed, put the patient in bed and tip up the top of the bed by the use of wood blocks, so that you get the help of gravity, so that the fœtus may drop out of the pelvis. (3) If that fails, you can disengage the

breech by making a vaginal examination with two fingers and pushing the fœtus out of the pelvis through the fornices. Then you can do version. Nine out of ten breeches you can turn without using an anæsthetic. If you fail to turn, you can put the patient to bed for 24 hours, get her bowels acting, give her chloral to secure a good night's sleep, and so get tone back to her muscles, and you will then succeed where you have failed before.

That leaves one out of ten for whom you cannot do version. If you give an anæsthetic you may only succeed in turning half of those. So without an anæsthetic you turn 90 per cent. of breeches, and with an anæsthetic you can turn 95 per cent. It is always worth trying with an anæsthetic. The particular danger associated with the use of an anæsthetic is that you may do damage by pushing too hard, and so you may separate a piece of placenta and there may be ante-partum hæmorrhage, and the fœtus may die because of the separation of its placenta. So if you are doing version under an anæsthetic, don't do it because you do not want to hurt the patient, but because you want her more relaxed, and you should not use more force on a patient who is under an anæsthetic than you would without it. I know that is a counsel of perfection, which may be difficult to follow.

If you do all those things, every now and then you will come upon a breech delivery, either because you have not diagnosed it during pregnancy and therefore have not thought of doing version, or a case may occur in which the condition will be reverted to after you have done version.

Although you find the authorities will not admit the high breech presentation mortality rate, some are so scared of breech deliveries that they advocate Cæsarean section as the means of dealing with the condition. We must put that out as a method of treatment from the start. Cæsarean section carried out under ideal conditions carried a maternal mortality rate of 1 to 2 per cent.; you cannot get a less percentage than that; it does not include cases done late or for serious abnormalities. The mortality rate for women in childbirth in this country not under the best conditions is ½ per cent., so you are not doing right to increase a woman's risk by four times in order to deal in this way with a difficult presentation. The only times that Cæsarean section is justifiable in breech presentation is when it is complicated by something else, and then the indication is not so much the breech as "the other thing." If you have a breech presentation with contracted pelvis, do the Cæsarean section for the contracted pelvis. We must not in this way shirk our duty in dealing with a difficult breech case; our duty is, wherever possible, to deliver the woman through the natural passages.

There are one or two principles involved in delivering a breech which I should mention to you. One is, you must not hurry your patient in the first stage; you must wait long for the end of the first stage, wait patiently without doing anything active except making the woman comfortable. That is where the importance of using sedatives comes in. Be liberal with your sedatives, and make the patient eat and drink during the long first stage, because if during 24 hours she is kept on starvation diet, she may be in a poor condition for the further stages.

I would point out that for years and years people have known of morphia and chloral and what they will do, and they have known chloroform a long time. It takes many people years of experience to find out how much chloral and how much morphia they can give successfully to women in labour without jeopardising the fœtus. I should have thought that one of the most satisfactory things in obstetrics was the value of chloral, morphia and chloroform, yet every month somebody invents a new analgesic or anæsthetic; Nembutal is one of them. You see women experimented on with all these drugs. Do not be misled by people who tell you of the marvellous results of Nembutal. I have no grudge against it. Some of us know of three women in labour who were killed straight off by one of these new drugs. I forget what the mortality from anæsthesia at Guy's is; I think it is about 1 in 8,000, and you must give 24,000 more administrations of these drugs before you can feel you have anything as safe as ordinary anæsthetics. I do not want to cramp research, but it is not research to put newfangled drugs into women in labour. If you are researching on the matter, go to the laboratory and spend your whole time in an investigation of Nembutal and these other drugs. It is not fair to experiment irresponsibly on half a dozen people with every new drug that comes out, especially as even experienced people do not know how much morphia to give without jeopardising the fœtus. How can any one of us get enough experience with half a dozen drugs? People's memories are short. The man who can remember his last 50 cases and not remember the death he had 49 cases ago is not exceptional. When you are dealing with anæsthetics and analgesics it is a question of dealing with dangers in 1 in 1,000 and 1 in 10,000, and you must not jeopardise the patient's life for the sake of trying some new drug. So I hope you will all learn how to use morphia and chloroform for labour.

There is another drug, which was new 20 years ago, but we have had enough experience to know what it will do—scopolamine (hyoscine). If you use the first of those names you are supplied with a better sort of hyoscine, and that is also very useful in obstetrics. It you want to give a woman with a breech presentation sedatives, you can give morphia, scopolamine and chloral, and, in the third stage, chloroform. We know that, used carefully, they are safe drugs. None of us have seen enough of the action of these new preparations, given by divers routes. They kill a few people. They are given by rectum, and occasionally a rectum sloughs off. Finally another way is found, and then it is abandoned for, as they say, a better drug.

One of the oldest ways of inducing twilight sleep was to give paraldehyde by rectum, in doses which were anæsthetic, and that went beautifully until a few people passed per rectum the inside of their colon.

You can give morphia, chloral and scopolamine in the first stage of a breech delivery, and encourage the patient to eat and drink, and wait patiently until the second stage. The difficulty you are up against in the second stage of a breech labour concerns the legs. There are different points of view about pulling down the legs. There is no doubt that extended legs can splint the trunk. If there is a fœtus with both legs extended against the anterior abdominal wall, it tends to prevent lateral flexion of the spine, and so to delay the birth of the buttocks, but that need not necessarily be so. It depends on how long you can wait and how strong the pains are. From 40 to 80 per cent. of breeches with extended legs will be born spontaneously with the legs extended. In only 5 to 20 per cent. is it necessary to pull extended legs down. You must watch the case, and you can feel that so long as the breech continues to come down you need not interfere in that way. But if for half an hour the breech has stopped advancing, that must be taken as an indication to pull down the leg.

In breech delivery it is best to allow the patient to do as much of the delivery as possible, and so, though you will give whiffs of chloroform in the late stages, it is better if she is not completely anæsthetised. For this reason also it is better during delivery that the patient shall be on her left side. I know that is against the idea of many people, but I think the patient can then use her voluntary muscles much better than if she is on her back. If you have difficulty in connection with the birth of the buttocks, put your hand in the vagina and pull down the arms and flex the head. And if you can make a little more room there it will be better.

Potter, in Buffalo, United States, before the birth of the buttocks, as soon as the second stage starts, irons out the vagina, as he calls it. He puts his fingers in the vagina and presses it, then he can get four fingers in, then his whole hand, stretching the vagina until it is flabby. That is a very good method, because if there is to be manipulation, there is plenty of room for it. Holland recommends the carrying out of epiphysiotomy, to give plenty of room for manipulations, and he recommended it to prevent intracranial hæmorrhage. But you must then anæsthetise your patient before the birth of the buttocks, and that means converting a spontaneous breech delivery into a breech extraction. So, though the principle of a flabby vagina is a great help, we do not adopt it here, because it means that every breech case you must extract manually.

As soon as the buttocks are born, the rest of the delivery is better conducted with the patient on her back, and you should always have an anæsthetist present to give chloroform at once; it is of no use to delay sending for an anæsthetist until you have decided you want to pull down the arms; he must be on the spot. If there is delay in the birth of head and shoulders, put your hand in and feel the fœtus, and if there are extended arms the patient should be at once anæsthetised. When the arms are extended you can pull on the breech, but you cannot pull down extended arms unless the shoulders are as low as possible in the pelvic cavity; the rule is, that you cannot pull down an arm unless the scapula is showing at the vulva. Having pulled down the arms, you are left with the head above the brim. The best way to get the head in the pelvic cavity is to push on the fundus. Then if the head will not go down you must do a jaw-and-shoulder traction.

The next difficulty is the delivery of the head from the pelvic cavity; it is not always advisable to use jaw-and-shoulder traction, because you may do harm by pulling on the neck of the fœtus, more harm than by pulling on the head with forceps. Therefore, in breech delivery always have forceps ready if the head is difficult to deliver. That is a point of view I have arrived at recently. I used to think it was unnecessary to put on forceps. But forceps will not deliver a head which is not in the cavity. To get the head into the cavity you push on the fundus and do a jaw-and-shoulder traction. If it does not deliver easily, put the forceps on and deliver.

There is one other little aid in breech delivery which is worth mentioning, and that is CO_2 and oxygen apparatus. I am afraid it is useful only

in hospital. Much as we admire the Sparklet machine, it is not much good to have only 12 litres of gas. If a fœtus is born in a state of asphyxia it has got a lot of CO_2 in its blood because the cord has been compressed and it cannot get oxygen, and so it makes a violent expiratory effort. The medulla is stimulated by the CO_2, and so the efforts become even more violent. The respiratory centre is poisoned by this lack of oxygen, so that ultimately the respiratory centre becomes inert, and then CO_2 will no longer stimulate it. If that fœtus is delivered, there is enough CO_2 to make it breathe, but there is so little oxygen that its respiratory centre is insensitive to the stimulation of CO_2. Oxygen will revive the sensitiveness of the medulla, but if you do not add CO_2 you will not give its medulla the maximum stimulus. So there is nothing so good as 5 or 7 per cent. of CO_2 in an oxygen mixture. And it is no good to just hold the funnel over the mouth; you must get it actually into the fœtus. If the medulla is insensitive, these fœtuses will not breathe at all. So it must be done with artificial respiration. An efficient method is to clap the mask on the face, after assuring yourself that the airway is patent; and if you make the fœtus take a breath it will breathe in 95 per cent. of oxygen and 5 per cent. CO_2. The apparatus is only practicable in hospital, because there you can refill it. I am convinced that CO_2 and oxygen, given in that way, will save a certain number of babies who, otherwise, would have died of asphyxia.

The Nursing of Genito-Urinary Cases

A Lecture delivered to the Nurses of Guy's Hospital on 24th June, 1932, by A. R. Thompson, Esq. Ch.M., F.R.C.S.

LECTURE I

Summary of Lectures

Careful attention to details is necessary.

Patients are often difficult to treat for æsthetic reasons.

They are restless and anxious, and may be bad-tempered.

They may be suffering great pain and may have severe bleeding, which tends to cow a man.

They may be much worse than they appear to be.

They are frequently septic cases from the beginning.

They are liable to post-operative complications, which the nurse should try to anticipate.

They may have been accustomed to a very full and strenuous life, and the discipline and organisation of a nursing home may not appeal to their feelings.

General symptoms such as malaise and headache with pyrexia may appear before the local signs of disease show themselves.

INTRODUCTION

IN connection with the nursing of a case suffering from genito-urinary disease, tradition and mystery play a great part. The fact that many of the operations which are performed in this branch of surgery cannot be of a primary union nature increases the difficulty of nursing these cases.

But, in fact, tradition and mystery should concern the nurse very little. As regards younger patients, the idea that venereal disease may be at the root of all the trouble should not be allowed to prejudice the case in the mind of the nurse. The speaker well remembers when the present matron of Guy's Hospital was in charge of his beds, how she instructed the nurses that, even if this was the case, the patient still needed nursing service. As to older people, the nurse will do well to dismiss from her mind any autocratic traits that they may show, and to recollect that the autocracy of an old man is one of the privileges of his age. A young man, after treatment, desires that he may live comfortably. An old man sometimes only hopes to die comfortably. In old people, too, remedies may not be used that may do a young man much good. I had a patient some five years ago for whom I had done the operation of prostatectomy.

He had a firm belief in the certainty and greater happiness of a future life, and had lost his wife, to whom he was devoted. It was only by telling him that the failure of the operation by his death would spoil my own reputation that I was able to induce him to do his best and live, and he lived quite happily for four years after the operation, and died of cardiac failure.

The mental attitude of patients with enlarged prostate is well worth the attention of the nurse. Patients who come willingly to be operated upon have a much better chance of life than those who may feel themselves forced into it.

Nurses must forgive any badness of temper. Dr. A. T. Rogers, of Bromley, who was my house surgeon, and who afterwards had a large infirmary experience, fully endorses my opinion that a man who has developed a bad temper is very likely to be entering upon the very last stages of life.

After these general remarks we may pass to the consideration of particular cases, and we shall commence with the case of an operation for enlarged prostate, which is usually known as "supra-pubic prostatectomy."

PROSTATECTOMY

Pre-operative nursing.—The patient who enters a nursing home has probably lived a comfortable life and has become accustomed to a regular life and punctual hours. It is a good thing for him to go into a nursing home for a little time before the operation, and thus to get accustomed to its organisation, and the very serious alteration in his habits of life must be minimised as far as possible.

It is important that the urine should be collected, and the collection is sometimes most inadequately done. All the urine which is passed in a period of 24 hours should be collected and placed in a Winchester quart bottle with a tight stopper, and should be on view for the surgeon to see when he comes to visit the patient. The patient's name should be printed legibly on a label fixed to the bottle. This collection should be made even when the urine is being passed through a catheter. The mention of a catheter raises a very important item in the instruction that nurses should receive in this class of case. Orchitis or inflammation of the testicle on one or both sides is not an uncommon complication of catheter cases. There are three important points that a nurse must know about orchitis. First, pyrexia may come on before localising signs of disease appear in the testicle, such as local pain and swelling. The second point is that orchitis may be actually responsible for the death of a patient, and the third point is that it can be prevented by careful nursing. The way to prevent it is by seeing that the testicles and scrotum are always kept up well on the abdominal wall, or as high as possible. This should be done by lifting the scrotum as high as possible and placing a firm pad of wool under it, and the nurse should instruct the patient that this step is quite necessary and that he must help her all he can in trying to keep the scrotum as high up as possible, and that it should be well supported.

There is some tendency for post-operative orchitis to go on to suppuration, and at first some such application as belladonna and glycerin should be used as a local application.

You will recollect that this form of treatment is often adopted in inflammation of the breast or mastitis. Another way in which a good nurse will make all the difference between life and death after prostatectomy is by anticipating chest trouble. For a long time now in my practice at Guy's Hospital the massage sister has arranged for the patients who are going to be operated upon for prostatectomy to have instruction in breathing exercises. For a patient with enlarged prostate has usually reached an age when he depends solely on his diaphragm in order to insure proper respiration. Now when an abdominal wound has been made, partly owing to loss of counter pressure in the abdomen owing to the suprapubic wound, and in part owing to the pain in the bladder region, breathing may become very deficient. Hence fluid collects in the lungs, and pneumonia may result. Now if the patient be instructed before the operation to breathe with his chest, other muscles beside the diaphragm are trained to act, and thus help the diaphragm. Hence a nurse who has had training in physical exercises may be very useful in trying to ensure a successful issue in a case of prostatectomy.

At the time of the operation a nurse may perform two very important duties. Sometimes a patient may stop breathing under an anæsthetic. As an elderly man cannot afford to do this, I always apply artificial respiration at once, so as to get him breathing as soon as possible, that the heart may not suffer, but on these occasions the nurse should open all doors and windows so as to give fresh air to the patient. The second duty of a nurse is to have irrigating fluid and a funnel in readiness both for the purpose of dilating the bladder previous to incision, and for the purpose of irrigation of the bladder after the actual operation of removal of the growth of the prostate. A very useful lotion is liquor hamamelidis (B.P.) undiluted, but of a temperature of at least 110° F This stops any ordinary oozing of blood.

The operation being completed and the dressings applied, the patient is taken back to bed. Pituitrin (one cubic centimetre) is injected before the patient leaves the operating-room, and I regard this as a most important item in preventing shock and that very troublesome post-operative condition which so often threatens, and less often actually appears, namely, ileus. This is dilatation of the bowels, and is not only dangerous in itself, but, even if cured, implies that the patient will have to be most carefully treated with regard to other systems failing besides the alimentary.

The patient is laid on his back in bed, but the nurse should not too religiously follow out the usual advice to allow him only to lie on his back. Provided that there is support for the back, the patient may well be allowed to lie on his side, and this lateral position will greatly assist drainage from the open bladder wound. Bed-sores, too, are much less likely to occur when a patient is allowed occasionally to lie on his side.

Before we go any further in the account of what a nurse may be expected to do, let us consider the question of the pulse.

Always before the operation, and this term applies to any operation, the nurse should thoroughly study the pulse as to its frequency and its strength, and also as to its regularity.

If she notices any irregularity before the operation, she should note it, and tell some higher authority. An irregular pulse in itself may not be a very important thing before an operation, but if it occurs after an operation such irregularity may be of very great significance, which will be lessened if it is known that it was irregular before the operation.

Bleeding may occur after the operation, and it is the nurse's business to see that it is stopped. If she cannot by pressure on the abdomen stop the bleeding herself, then she must call in the surgeon's assistance.

The first dressing of the patient is done at the end of 24 hours, and should not be done before this. There is a good deal of shock with the first dressing, and if the dressings become saturated with urine and blood, then the dressings should be packed but not removed. At the end of the first dressing the patient should be given an ounce of neat brandy to combat any shock. He cannot afford to have a second shock after the operation.

When the operation has been completed a tube is placed in the wound—usually indiarubber, but I always prefer glass. The direction of this tube is most important. It is laid obliquely, and is directed backwards and downwards, so that the external part is directed upwards and forwards. The nurse should try to keep the tube in this position. It should not be projecting directly upwards from the surface of the body as the patient is lying in bed. The level of this tube should be noted by the nurse, so that she may know whether or not it is coming out or slipping away from the cavity of the bladder, which it is intended to drain.

During the progress of the case after prostatectomy the nurse, no doubt, does her duty in reporting on the pulse, respiration and temperature, also the bowels, and, of course, the urine so far as she can collect some. But, personally speaking, I must say that I like a nurse who will give me her general impression as to the patient. A slight degree of pyrexia may be a good sign in an elderly man, as it shows powers of reaction, and a statement as to the general condition of the patient may be more valuable to me than a detail as to the exact degree of temperature revealed by the thermometer.

But I would warn nurses that after a prostatectomy a patient may appear to be better than he really is, and he must be kept quiet and not allowed to do too much. There is a good deal of difficulty with the relatives in some of these cases. Personally, I believe that such patients should not be permitted to see any visitor for at least three days after the operation, as relations in particular are very apt to interfere with the diet of the patient, and especially with the fluid part of it. Only the other day I found that a wife was giving very much fluid whilst the nurse was out of the room, and the result was that the patient got considerable distension of the stomach, with very nearly a disastrous result.

In my own practice I very rarely make use of a catheter after suprapubic prostatectomy, as I find that the bladder heals up better and quite as quickly without it as with it, and I fancy that I have only few cases of orchitis because of this. I say "fancy," as I am sure that orchitis may occur when the patient has gone home, and it is not reported. For this reason a suspensory bandage should be provided for the scrotum of the patient when he gets up and walks about, and nurses should be particularly careful to see that it is on when the patient leaves the nursing home.

The patient may be allowed to sit up on the side of the bed with his feet on the floor on the third day after the operation. The bowels should have been opened within 48 hours of the operation. The best purge for an old man is castor oil, and its taste is completely concealed if it is mixed with stout. I recollect being asked by Sister Queen if I could suggest anything for a woman in her ward who was under the care of a gynæcologist, who was causing much anxiety as her bowels could not be opened. Castor oil, she said, made the patient sick. I advised the use of stout, and the patient did not know she was taking castor oil as well, and the result was quite good.

The advantages of allowing a patient to get up on the side of the bed on the third day are these. First, there is the happier mental outlook that is produced by this obvious sign of his "getting on." Secondly, the change in position tends to counteract any mechanical condition in the way of œdema of the lungs, and, thirdly, the rectus abdominis muscles which lie on the front of the abdomen, one on each side of the middle line, tend by their contraction to close upon each other, and produce very considerable natural narrowing of the wound. A fourth advantage lies in a fact that is not appreciated so frequently or so fully as it should be. There are, as is well known, certain transverse furrows upon the abdominal wall, especially lying below the umbilicus and above the pubes. These

furrows, though they may coincide with the lineæ atrophicæ of the woman who has borne children, are not the same as these lines.

These furrows are really due to flexion of the body. Now one of these linear furrows runs right across the vertical incision which was made for opening the bladder. The furrow thus produces an opening up of the suprapubic wound, and when a patient is lying on a bed with his back and head supported by pillows this line of flexion becomes even more pronounced than it was. Thus, by allowing the patient to sit on the side of the bed with his feet on the floor, this furrow is got rid of, and thus no longer opens up the wound. At a later stage the furrow may become of even greater importance. The lecturer does not, as a rule, have catheter drainage after a suprapubic prostatectomy. The suprapubic wound should be completely healed within three weeks after the operation. He has, he believes, very few cases of fistulous formation, that is, a permanent opening above the pubes, and this statement is made as he has the opportunity of following up his cases after they have been discharged from the hospital. This fistulous formation may be the cause of much misery to a patient, and the nurse can do much to prevent it occurring. At the end of two or three weeks, if the wound has not healed up, the patient who has been allowed to get up and walk about as he pleases is put back to bed. A large coudé catheter is inserted into the bladder through the urethra and secured in position. Appropriate drainage is provided and the patient is laid on his back with only one pillow under his head. By this means the suprapubic line or furrow is got rid of and the wound heals up rapidly.

There is another difficulty which remains to be pointed out. If the patient be allowed to remain in bed too long, comfortably supported on pillows, his abdominal muscles get slacker even than they were, and thus the whole weight of the abdominal viscera falls upon the upper and back part of the bladder. This produces a bulging of the bladder wall so that it—covered, of course, by mucous membrane—bulges into or even through the wound. This mucous membrane is of a ruddy colour, and gives the inexperienced person an idea that good granulations are forming. But this is not all. The bulging mucous membrane forms a very efficient valve, which completely blocks the wound whilst it is acting and prevents urine passing away through the wound, and the patient may be passing his water normally *per vias naturales*. But when the abdominal pressure is reduced at night owing to the patient usually lying in a flatter position, then the valve ceases to functionate, and urine leaks away, hence the common report which is usually very hopefully recorded that the patient is quite dry during the day, but is wet at night. When this report is given to me I know that the condition that I have described has occurred, though the wound may be looking thoroughly sound. It is the duty of the nurse to prevent this happening in the way that I have indicated. For its cure the surgeon is responsible. Such fistulous formations occur far too frequently in nursing homes.

Sloughing in the Wound.—Very disagreeable sloughing may occur in the superficial part of the wound, and if at all bad may pass into the bladder. If this occurs early, it shows a poor condition of the patient, and if dark in colour (it is usually white or grey) then the outlook is very bad from the point of view of life. Anyhow, it retards recovery of the patient and local healing of the wound.

The sloughing is due to a form of micro-organism known as the staphylococcus, which, as you know, is frequently responsible for boils and carbuncles in other parts of the body. This sloughing is best prevented by the use of boracic acid crystals, but not boracic acid powder, as the latter tends to form a solid tenacious covering to the wound, which may do a great deal of harm. The crystals, on the other hand, become dissolved and form a liquid, which is a very great advantage. The whole suprapubic wound, and, if necessary, the cavity of the bladder, should be filled with the crystals. With this application sloughing should not occur.

Passage of Urine.—After the shock of the operation is over the nurse's chief attention should be directed to the patient passing his water.

If he is told to pass his water he will never do it. He should be told to let the water leak away *per urethrama*, and frequently this happens when the patient is at stool. If this happens, then the patient should be told to continue to let it leak. Frequently I know that the patient is going to pass water naturally when he tells me that some leaks away when he is at stool.

Care of Adjacent Parts in Prostatectomy.—Attention has been drawn to the suspension and support of the scrotum and testicles when a catheter is in position, or when a suprapubic operation has been done. The tying-in of the catheter is not an easy process at all. The best material for tying in a catheter is that form of string known as cotton seaming twine. It is procured at Messrs. Good Brothers near the Monument Station. This string is not unlike the material that is used for spirit-lamp wick. It is soft and reasonably strong.

A long piece, say 8 feet, should be taken and doubled. Then a clove hitch knot is made about the middle of the doubled twine. This clove hitch is passed over the outer end of the catheter and pulled tight, and it should, for surgical purposes, be knotted again with a reef knot. Then we have two equal double portions of string which are lying on one side of the catheter. One of the double ends should be tied on the opposite side of the catheter with a reef knot, and thus we have one double end on each side of the catheter. The foreskin should not be pulled back, but laid over the glans penis, and then the piece on one side should be so placed that one end comes over the dorsum and one end under the penis, and they should be tied together on one side of the penis above (remember the erect position of the body is referred to) the corona glandis and again brought over and under the penis, and again knotted. The direction should be obliquely upwards with every successive knot. Eventually, after three or four knots have been made, then the string, without it being pulled at all, will be on the abdominal wall, where it may be fixed to the surface of the skin with adhesive strapping. If the parts have not been shaved, as in cases in whom no operation has been performed, the string may be tied to the pubic hairs.

The same steps are taken with the other end of the string, and if it is nicely done then there is a sort of network on the penis which may be applied quite loosely, but will not slip off.

The foreskin and the parts adjacent should be kept as clean as possible. I am sure that I have seen delay in healing of a suprapubic wound by the nurse not paying attention to this very necessary nursing service.

I have frequently referred to the fact of leaking of urine from the bladder after suprapubic operations. This leaking may take place through or by the side of the tube which has been placed in the bladder. It is very remarkable how rapid is the closure of a wound in the bladder and the more superficial part of the abdominal incision. For example, I remember well two cases of elderly men who were in Bright Ward at the same time under my care for prostatectomy, and one of them, a medical man, was healed completely in 13 days, and the other in 14 days. I am inclined to think that the absence of tension in the walls of the bladder may conduce to this rapid healing, but information is wanted as to the actual healing of the wound and how it happens.

Time of Removal of Suprapubic Tube.—I believe this should be removed permanently when all bleeding has ceased, and when the washings from the bladder come back clear. If there is pus in the water, I do not think that the tube can be omitted altogether, though a much smaller one may be used. I have seen cases in whom troublesome cystitis has occurred because the tube was removed too soon.

Keeping the Patient Dry and Comfortable.—Iceland moss dried and packed tight is a moderately cheap and very efficient way of taking up moisture from a leaking urinary wound. It can be sterilised without adding much to the cost. Any form of ordinary dressing must be changed frequently.

The folds between the groin and scrotum should be dusted with powder. Glutol powder is the best in my opinion, as the grains remain discrete and do not adhere and form tenacious plates as some powders do. This is not very cheap, and cyanide powder is also good for the purpose. *In my experience no ointment should be used at any time.* The skin should be kept clean round the wound by means of methylated spirit or, better, ether. But especially in the use of the latter, the nurse should not have the material in a bottle larger than one of 4 oz. capacity, and the pledget of lint that is used should only be damp, but not dripping. There should be no naked lights near the patient.

Attention to the Foreskin and Glans Penis.—This is very necessary. The foreskin in elderly men tends to cover the glans penis, and leads to retention of secretion, which may become very septic. The foreskin should be gently rolled back and the parts thoroughly and firmly washed with warm boracic lotion on wool, so that all the secretion may be removed. When this has been done the foreskin should be gently replaced, as, unless this is done, the condition of partial paraphimosis may be produced. This is a swollen condition of the glans and foreskin which is due, in the first place, to the constriction of blood vessels that lie near the tip of the foreskin. This leads to very considerable discomfort, and possibly nasty septic conditions.

Useful Drugs and Medicines.—Morphia (grain one quarter) after an operation in an adult may do much good the first night by producing sleep and relieving pain. Pain is often complained of at the base of the bladder.

An iodoform suppository placed in the rectum will do much to relieve this pain, and may be introduced at the time of the operation.

Aspirin should not be used, as I believe that it may conduce to the bleeding coming on or continuing.

Calomel (grain one quarter night and morning) with quinine sulphate in the solid form (five grains

every four hours) may be useful in combating sepsis, especially in the testicles.

Potassium bromide in connection with circumcision will be mentioned later. I do not use it for any other condition.

Laudanum (tinctura opii) is used for bleeding, from a growth of the bladder, and may be used up to 15 minims every four hours till the bleeding stops. But it must be used with caution, and the condition of the patient should be carefully watched, as he may have bad kidneys and not be secreting as much of the opium as he is taking in, and thus may develop serious symptoms of opium poisoning. During the severe hæmorrhage that is associated with this distressing condition, only very few and infrequent visitors should be allowed and the patient should be on light diet.

Urinary Antiseptics.—Some form of these drugs is taken by the mouth, and a very useful prescription is the one that is known as the six-grain mixture in the Genito-Urinary Department at Guy's Hospital. This is as follows :—

R. Boric acid	..	.. grains six.
Urotropin	..	.. grains six.
Papain ..	..	.. grains six.
Syrup. aurantii	..	.. dram one.
Water ..	..	.. to the ounce.

f.m. 12 ounces. One ounce t.d.s. after meals.

Acid sodium phosphate is the best medicine to use for the purpose of making the urine acid, and may be given freely even up to 20 or 30 grains every four hours.

In cases of bacillary infection of the urinary tract, some alkaline treatment is strongly indicated, such as : Potassium citrate, grains fifteen, every four hours, and if this is combined with potassium iodide, grains five, in every dose, I think the results are better than with the plain alkali.

Mist. buchu co. of the Guy's Hospital Pharmacopœia is very useful for quieting down painful bladder conditions :—

R. Tinctur. hyoscyami	..	minims thirty.
Potassium citrate	..	grains thirty.
Infusion of buchu	..	to the ounce.

f.m. 12 ounces. One ounce to be taken three times a day before meals.

When it is desired that the bladder should discharge its contents freely and vigorously there is a very good mixture which I use frequently. It is known as the S. and D. mixture, and is as follows :—

R. Liquor strychninæ	..	minims two.
Tinctur. digitalis	..	minims two.
Syrup. aurantii ..	..	dram one.
Water	..	to the ounce.

f.m. 12 ounces. One ounce three times a day before meals.

There is a very useful medicine that is needed directly the patient shows signs of becoming " chesty." It is as follows :—

R. Extract. nucis vomicæ liquid.		minims two.
Potass. iodid.	.. ..	grains five.
Ammon. carbon.	.. ..	grains eight.
Syrup. aurantii	.. ..	dram one.
Water	..	to the ounce.

f.m. 12 ounces. One ounce t.d.s. before meals.

Pituitrin one c.cm. to be injected always immediately after a prostatectomy, minimises and combats shock.

Lotions for Irrigation of the Bladder.—These, as a rule, should be very hot ; anything up to 110° F. is not too hot.

As regards strength of the lotion, they should not be any stronger than what would be used for an eyewash.

Boracic acid (concentrated), oxycyanide of mercury (one in two thousand) *are most commonly used.* Formalin, hydrarg. perchlor. and lysol *are not to be used* for bladder irrigation. In however weak a solution, they are very irritating to the bladder mucous membrane.

Thompson's Fluid.—This was recommended by the late Sir Henry Thompson, and is made as follows. Mix two ounces of glycerin with one ounce of biborate of soda or borax. Of this solution half an ounce is added to four ounces of water.

Never allow more than four ounces of any solution in the intact bladder, as more does no good and may cause much pain.

Anatomy of the Urinary Organs

It is not necessary to go into details about these organs, but a nurse should have some notion about their general position.

The urinary organs are the kidneys with their ducts, the ureters, which open into the bladder, one on each side of the base, the urethra, and the prostate and penis. In the female the urethra is much shorter than in the male, and there is no prostate.

The Kidneys.—These are paired and practically symmetrical organs, which lie in the abdomen on either side of the vertebral column. They are about four and a half inches long by a little over two broad, and rather more than an inch in thickness. Their shape is typical, and is like that of a broad bean. They lie in intimate relation with the last two ribs, which lie athwart the kidney on each side. The last rib corresponds very closely to the pelvis of each kidney. The pelvis is the dilated part of the upper end of the duct of the kidney. When the body is seen from the front the kidneys may be described as lying, the right rather lower than the left, as to their upper two-

thirds or less above the corresponding costal margin, and as to their lower third or less below the same line. Thus the kidneys are rather higher than might be expected.

But you have also to know the lateral boundaries, and I think that the clearest way for you to understand this is to construct a parallelogram on the following bases. Take a line from the junction of the fifth costal cartilage and its rib and draw it to the upper end of the ensiform process of the sternum. From the outer edge of this line draw another line to the lowest part of the costal margin on the side of the body. Raise a parallelogram on these bases, and in this parallelogram the kidney lies.

The Ureters.—These are the ducts of the kidneys and extend from the pelvis of the kidney to the bladder. They are about a quarter of an inch in outside diameter, and they are about ten inches long, and descend vertically from the inner border of the kidney to the bladder. When they enter the pelvis of the skeleton they tend to turn forwards and inwards as they reach the bladder, and they open into the base of the bladder about one and a half inches from each other. Kidneys may be single, and ureters may be reduplicated.

The Bladder.—The bladder lies in part behind the pubes, and when only holding the amount that first gives rise to the desire to micturate cannot be palpated above the pubes. The bladder is much broader in the female, and may develop lateral dilatations which may lead to trouble. These dilatations project downwards on each side of the vagina. The normal capacity of the male bladder is rather more than 200 cubic centimetres, or about five ounces. By capacity I mean that amount of urine which gives rise to the desire to micturate.

Disease of the bladder or a stone in the bladder may sometimes be detected *per vaginam*, for the vagina lies behind and below the bladder, and sometimes stones in the ureter, or even the ureter itself, may be felt in the upper part of the vagina.

When the bladder becomes distended, then either a large vertically oval swelling may be seen and felt in the lower part of the abdomen, or the swelling may be transversely ovoid, *i.e.*, like an egg-shaped mass lying across the abdomen.

The Prostate.—The prostate gland lies behind the pubes and, when enlarged, can be felt, as a rule, with a rectal examination projecting backwards and downwards. It is about the size and shape of a horse-chestnut.

Through the prostate pass on each side the ducts of the testicles, or vasa deferentia as they are called. These open into the urethra about an inch from the bladder.

There are ducts from the prostate, but, though numerous, they are very small, and they open in the same opening as the ducts of the testicles.

The vas on each side passes from the upper part of the testicle and through the inguinal opening, where it turns downwards and inwards to its destination, as described.

Sport

Tennis

Guy's v. St. Thomas's

GUY'S 1st VI played St. Thomas's Hospital in the Semi-Final of the Inter-Hospitals' Cup at Honor Oak Park on Wednesday, June 29th. After a hard struggle they were just beaten by 8 matches to 5, two matches being unfinished.

Both sides were at full strength. In the singles, which were played in the morning, Cooper was just beaten by E. M. Buzzard—St. Thomas's No. 1. Giesen beat Van Meurs fairly comfortably, but St. Thomas's won the rest of the singles, except one which was unplayed, so that at lunch time they were leading 4—1.

Guy's started well in the doubles, winning all three matches in the first round, Freer and Sidebottom doing particularly well to beat Van Meurs and Beilby. This brought the score to four matches each.

In the next round Cooper and Giesen were unlucky to lose to Van Meurs and Beilby in three sets. Bruce-Pearson and Sharp, playing very well, only just lost to Buzzard and Sowerbutts. Sidebottom and Freer again won their match. At tea-time, St. Thomas's were leading by six matches to five. This left Guy's the task of winning three more matches for a victory.

In the third round, Sidebottom and Freer were not quite good enough for Buzzard and Sowerbutts, and Sharp and Bruce-Pearson went down to St. Thomas's second pair after a brave struggle. Cooper, who had been playing all the afternoon with a badly blistered hand, was forced to give up when he and Giesen were a set ahead of the St. Thomas's third pair.

RESULTS

Singles

H. G. N. Cooper lost to E. M. Buzzard 4-6, 8-10.
J. E. Giesen beat Van Meurs 6-1, 7-5.
J. A. Sidebottom lost to Liem 7-9, 4-6.
E. Sharp lost to Milligan 3-6, 4-6.
J. L. Freer lost to Rouillard 2-6, 6-8.

Doubles

Giesen and Cooper—
Beat Buzzard and Sowerbutts 6-3, 6-4.
Lost to Van Meurs and Beilby 1-6, 6-2, 4-6.
Drew with Milligan and Rouillard 6-3.

Sidebottom and Freer—
Lost to Buzzard and Sowerbutts 3-6, 4-6.
Beat Van Meurs and Beilby 6-3, 3-6, 6-4.
Beat Milligan and Rouillard 6-2, 7-5.

Bruce-Pearson and Sharp—
Lost to Buzzard and Sowerbutts 4-6, 8-10.
Lost to Van Meurs and Beilby 5-7, 6-8.
Beat Milligan and Rouillard 6-2, 6-4.

Guy's 2nd VI v. St. Thomas's 2nd VI

GUY'S 2nd VI played St. Thomas's 2nd VI in the Semi-Final of the Inter-Hospital Cup at Honor Oak Park on Wednesday, June 22nd. After a very close match Guy's were just beaten 8-6, and one match unfinished.

RESULTS

Singles

K. Chartikavanij lost to Flowerdew 1-6, 5-7.
H. D. Robinson beat Norman 4-6, 6-4, 6-2.
J. V. Clarke lost to Hunton 4-6, 2-6.
H. Cowen lost to Maisey 4-6, 6-4, 6-8.
W. L. Ogle lost to Jamieson 2-6, 15-17.
R. G. Chapman beat Sze 6-4, 6-2.

Doubles

Robinson and Chartikavanij—
Lost to Flowerdew and Norman 4-6, 8-6.
Beat Hunton and Maisey 6-4, 6-3.
Beat Jamieson and Sze 6-3, 6-2.

Cowen and Clarke—
Drew with Flowerdew and Norman 7-5, 3-6.
Lost to Hunton and Maisey 4-6, 6-4, 3-6.
Beat Jamieson and Sze 6-0, 6-0.

Ogle and Chapman—
Lost to Flowerdew and Norman 4-6, 6-3, 4-6.
Lost to Hunton and Maisey 1-6, 4-6.
Beat Jamieson and Sze 6-3, 7-5.

NOTICES

Guy's Hospital Medical School

SCHOLARSHIPS IN ARTS AND SCIENCE

The following awards have been made for 1932 :—

War Memorial Scholarship in Arts of the value of £200.—
Robert Victor Coxon, St. Dunstan's College, Catford.

Entrance Scholarship in Arts of the value of £100, Divided between—
William Anthony de Castro Shearman, St. Paul's School, Kensington ; and
William Frederick Jayne Weston, Christ's Hospital, Horsham.

Entrance Scholarship in Science of the value of £100.—
Arthur Edwin Loden, Royal Masonic (Senior) School, Bushey.

Confined Scholarship in Science of the value of £100, Divided between—
Sangad Garnjana-Goonchorn, Imperial Service College, Windsor, and Preliminary Science Classes, Guy's Hospital Medical School ; and
John Ralph Miles, Dulwich College, and Preliminary Science Classes, Guy's Hospital Medical School.

T. B. JOHNSTON,
Dean.

Guy's Hospital Dental School

SCHOLARSHIPS IN ARTS AND SCIENCE

The following Awards have been made for 1932 :—

Entrance Scholarship in Science, of the value of £40 per annum, for four years.—
Eric Henry Cooper, Grammar School, Rotherham, and Preliminary Science Classes Guy's Hospital Medical School.

War Memorial Scholarship in Arts, of the value of £40 per annum, for four years.—
No Award.

T. B. JOHNSTON,
Dean.

Hospital Information, etc.

Nursing News

THE following nurses were successful in passing the Final State Examination in May. Their names have been added to the State Register :—

Q. Austin	A. Harris
E. Baldwin	E. P. Holmes
A. Butler-White	A. Izard
E. M. Brown	R. Jenner
H. Bailey	E. K. Martin
N. E. Creigh	K. McCausland
E. C. Cook	B. Nockolds
B. Dixon	R. Rose-Price
K. Fry	D. Scarff
H. Gillham	E. Turner
S. E. Hailey	M. I. Wilcock

Papers by Guy's Men

O. G. Morgan. Congenital nuclear hypoplasia of facial and oculomotor nuclei, with other congenital abnormalities. *Proc. R.S.M.*, 1932, xxv, 988.

E. A. Peters. (1) Frontal sinusitis, orbital cellulitis, insular panostitis 3 inches away, recovery ; (2) Recurrent papilloma of larynx. *Proc. R.S.M.*, 1932, xxv, 1056.

R. Reynolds. X-ray treatment of chronic mastitis and certain leukæmias. *Proc. R.S.M.*, 1932, xxv, 969.

H. C. Visick. Control of dentistry by medical profession. *Brit. Dent. J.*, 1932, liii (1), 698.

A. J Cleveland. Some illnesses resembling typhoid fever. *Clin. Jour.*, 1932, lxi, 277.

A. C. Hampson. Cerebro-spinal meningitis. *Clin. Jour.*, 1932, lxi, 265.

P. G. McEvedy. Recent advances in injection treatment. *Clin. Jour.*, 1932, lxi, 283.

R. E. Smith. Streptococcal septicœmia complicating epidemic influenza. *Lancet*, 1932, i, 1303.

M. G. Watson. Extraction technique for practitioners. *Brit. Dent. J.*, 1932, liii (1), 776.

M. Shaw. Some factors in the prevention of eye disease. *Medical World*, Vol. xxxvi, No. 13, p. 13.

P. M. F. Bishop and H. G. Close. A case of basophil adenoma of the anterior lobe of the pituitary : " Cushing's syndrome." *G.H. Reports*, 1932, lxxxii, 143.

H. G. Close. A case of cretinism. *G.H. Reports*, 1932, lxxxii, 154.

J. Croot. A case of arterial angeioma of the brain. *G.H. Reports*, 1932, lxxxii, 136.

G. B. Dowling. Superficial scleroderma. *Proc. R.S.M.*, 1932, xxv, 1326.

D. Forsyth. Place of psychology in medical curriculum. *Proc. R.S.M.*, 1932, xxv, 1200.

St. G. B. D. Gray. Injection treatment of inguinal hernia. *B.M.J.*, 1932, ii, 12.

S. Kimball. Levulose tolerance test, a study of its value with special reference to mild and chronic diseases of the liver. *G.H. Reports*, 1932, lxxxii, 157.

E. G. Little. (1) Lichenoid patches interspersed with retiform telangiectases : case for diagnosis ; (2) Multiple sebaceous cysts, recurrent since infancy, in middle-aged woman ; (3) Disseminated hypodermic carcinomatous nodules ; (4) Granuloma annulare. *Proc. R.S.M.*, 1932, xxv, 1325.

E. C. Lowe. Some causes of failure in vaccine therapy. *B.M.J.*, 1932, i, 1160.

W. M. Mollison. Infection of maxillary antrum. *G.H. Reports*, 1932, lxxxii, 131.

E. C. Warner and A. C. Hampson. Investigation and treatment of certain cases of disease of muscles and nerves. *Proc. R.S.M.*, 1932, xxv, 1213.

C. Worster Drought. Juvenile neurosyphilis with pupillary changes as sole clinical manifestation. *Proc. R.S.M.*, 1932, xxv, 1226.

Change of Address

S. M. Cohen, F.R.C.S. (Eng.), Sun Buildings, St. George's Street, Cape Town.

H. W. A. Post, M.D., 7, Harley Street, W.1.

H. L. Peake, F.R.C.S., St. Olave's Hospital, S.E.16.

A. Linnell, M.R.C.S., 22, The Crescent, Northampton. *Northampton* 1780.

A. A. H. Partridge, M.D., Doornleigh, Oakfield Road, Ashstead, Surrey.

S. C. Holms, L.D.S., R.C.S. (Eng.), 162, Charing Cross Road, W.C.2. *Temple Bar* 9259.

J. M. Robertson, M.B., B.S., 30, Upton Road, Watford. *Watford* 3061.

C. A. E. Cook, L.D.S., R.C.S. (Eng.), 45, Eversfield Place, St. Leonard's-on-Sea.

G. S. Loader, L.D.S., R.C.S. (Eng.), 37, Gloucester Place, Portman Square, W.1. *Welbeck* 2494.

Additional Qualification

J. Lanchester, D.D.S., North-western University, Chicago, U.S.A., 1931.

Marriages

ROBERTSON—NICHOLAS.—On June 15th, 1932, at Bromley, Kent, J. Murray Robertson, youngest son of Mr. and Mrs. D. J. Robertson, of Eastbourne, to Margaret Eirianwen, second daughter of Mr. and Mrs. J. Nicholas, of Llandovery, South Wales.

SIMPSON—BUCHANAN.—On June 4th, 1932, at Clermont Church, Withdean, Sussex, by the Rev. A. D. Belden, B.D. (Lond.), Cedric Keith Simpson, M.B., younger son of Dr. and Mrs. Geo. H. Simpson, of Grove Lodge, Withdean, Sussex, to Mary McCartney, eldest daughter of Mr. and Mrs. Geo. Buchanan, of Edgware, Middlesex.

EDS. { G. A. M. L.
E. S.

GUY'S HOSPITAL GAZETTE

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PASSIM

ONE cannot but admire the efforts of the Nurses Dress Reform League, if such a body exists, for there seems little doubt that some powerful organisation lies behind the startling changes that have recently been effected in the hitherto conventional costume of the nurses.

The substitution of grey for black stockings was undoubtedly the starting point of departures from what had come to be regarded as normal, which succeeded one another with astounding rapidity. After the triumph of the lighter-hued stockings came the introduction of a collar possibly less dignified in appearance yet correspondingly more comfortable to wear.

A short lull in hostilities occurred, and then the dress reformers advanced once more. Again the collar was made the object of their onslaught, and a still more abbreviated neckwear was the result.

It had been observed by those studying the campaign closely that the activities of this revolutionary organisation coincided usually with a spell of hot weather. It was not, therefore, surprising that during the recent heat-wave there should have been grave foreboding among the unbending die-hards of the Hospital. Their gloomy prognostications were amply justified. The dress reformers had fought and won again, and on this occasion it was indeed a sweeping victory. The Theatre Staff appeared one day in garments of a type far remote from that to which we have become accustomed.

The sudden disruption of convention is apt to be somewhat disturbing to the conservative male mind. Anxious, therefore, to see if there would be any sartorial response on the part of the masculine population of the Hospital, we deputed a special representative to study any innovation that might have been provoked by the nurses' triumphs over tradition.

Up to the time of going to press only two departures from the normal have been detected, namely, the wearing by a member of the senior surgical staff of a panama hat and a student in an alpaca suit.

Trivial as these observations may appear to be yet they are worthy of notice, in that they may mark the inception of a revolution in male attire even as did the grey stockings of the nurses.

▭

ST. THOMAS'S STREET has, during the past week, made a pretentious effort to emulate Piccadilly Circus. By this we mean that, under the influence of pneumatic drills and other noisy but efficient implements, it has come to resemble the excavations of an insane archæologist.

With ingress to the Front Quadrangle barred, another site had to be found for the assembly of cars belonging to members of the Staff. The road in front of the medical wards was utilised for this purpose, and proved itself a very suitable and convenient car park.

One can, therefore, forgive the wistful glances and envious mutterings that have come from student motorists during the past few days. It has indeed been galling for them to leave their cars in the affectionate, if ungentle, care of the young Borovians and then to enter the Park to find it transformed, as it were, into a vehicular sanctuary.

It must, however, be remembered that the rural atmosphere of this Park has been anything but enhanced by this mechanical invasion. In an era in which beauty is so universally sacrificed

to utility, it is well that on occasion the reverse should be allowed to hold.

We trust, therefore, that, great as the need is for a parking-place for students' cars, yet the authorities will turn a deaf ear to any plea that this should be established within the Hospital grounds.

▭

IT is a peculiar, yet nevertheless true, fact that Medicine, itself an essentially scientific profession, should have for its devotees so many who are themselves far from being scientifically minded.

Many inventions and gadgets have, therefore, been produced by enterprising firms to enable those who are of more classical leaning to overcome their difficulties.

Amongst these none will be more welcome or of more practical use to students and general practitioners than the invention of a lightning calculator which Messrs. Trufoods have recently produced.

By a mere turn of a disc the arrivals of any additions to the family circle can be calculated with remarkable rapidity and precision from the usual data.

This instrument will be a boon to the less mathematically minded of our colleagues, and is made all the more attractive by the fact that Messrs. Trufoods have agreed to send it free of charge to any of our readers who care to possess one.

▭

IT is with great regret that we have to announce the death of Capt. J. E. E. de Robillard, R.A.M.C., which occurred in Paris on July 2nd. Captain Robillard had a very distinguished career at Guy's, obtaining the Junior Science Scholarship in 1911 and later being awarded the Treasurer's Gold Medal in Surgery. His untimely death will come as a great shock to many of his former colleagues. We should like to extend our sympathy to his widow in her sad bereavement.

Obituary

JAMES COURTNEY WALLIS

IT was a great shock to us at Guy's to hear of the death of Mr. James Courtney Wallis on Saturday, July 9th, 1932, in Job Ward.

Mr. Wallis entered the Hospital in 1928 as a medical student. He was a man greatly loved and admired by all who knew him, for he was always full of fatigueless energy and unbounded enthusiasm towards every piece of work to which he put his hands. He was never found spending one idle minute. In addition to his medical studies he was a very keen evangelistic worker. He took a leading part in the Hospital Christian Union and for some time he was a leader of the Streatham Crusader Class, and he was a worker in the Children's Special Service Mission. Nearly two years ago he became honorary pastor of the Westminster Baptist Church, and fed and clothed the down-and-outs of London, providing work for not a few of them.

His loss was made the more sad by the fact that his marriage took place three months before his death. We should like to take this opportunity of extending our deepest sympathy to his wife and parents in their great bereavement.

Presentation of Sir Arbuthnot Lane's Portrait

ON the afternoon of Wednesday, July 6th, the Treasurer presided over a meeting in the Court Room, convened for the purpose of presenting a three-quarter length portrait of Sir W. Arbuthnot Lane, by Captain E. Newling, to the Governors, to be hung on the Court Room staircase.

In addition to Sir Arbuthnot and Lady Lane there were present—Mrs. Chapple, Dr. and Mrs. Mutch, Mr. C. and Mrs. Lane Roberts, Dame Sarah Swift (one of the matrons during Lane's surgeoncy), Mrs. Weston (née Kate Webb), Mrs. Edmond (née Tilbury), Miss N. Moore, Mrs. Martyn Lobb (née Greenall) and Miss Symons, who worked with Sir Arbuthnot Lane as Ward or Theatre Sisters, and Mrs. C. H. Fagge, Dr. F. v. Ofenheim, Captain and Mrs. Newling, Mr. Eason, the Matron and Professor T. B. Johnston. The old House Surgeons present were—Drs. R. Curle, V. Glendining, A. H. B. Kirkman, C. J. Pinching, H. M. Woodward, and Messrs. C. H. Fagge, R. P. Rowlands, P. Turner, E. C. Hughes, E. G. Slesinger, H. Chapple, T. B. Layton, O. G. Morgan, F. D. Saner and W. Tanner.

Mr. Fagge, who made the presentation on behalf of the subscribers, said :—

" Mr. Treasurer,

" As the representative of those old Guy's men who, between the years 1888 and 1918, worked with Sir Arbuthnot Lane as his House Surgeons, it is my privilege to ask your acceptance, on behalf of the Governors, of this portrait of our Chief, to be hung within the Hospital, in perpetuity.

" The desire on the part of Lane's House Surgeons to appraise his worth beyond that of any surgeon at Guy's in the past 30 years—for during that period no member of the Surgical Staff has been so honoured—cannot be attributed to any single feature in his career or personality. In the main we wish it to be an index of our appreciation of his work as a surgeon—of himself, as a man of great originality of ideas, of unusual mechanical sense, and of remarkable technical dexterity.

" One of the best known of our brethren across the Atlantic, in attempting to assess the claim to greatness of the late Dr. J. B. Murphy, placed first amongst the necessary qualities that of originality of mind. Under this heading, within the period of his service on the Surgical Staff, Lane has claims equal, if not superior, to those of any other surgeon in the British Empire, for work of enduring reputation. Further, I venture to think that he can claim to have originated a school of thought and practice, of which school we, his former House Surgeons, are the disciples and, I hope, the apostles ; so he has shed lasting renown upon the Hospital which trained him, for his tradition will endure to generations yet unborn, and, in doing so, will influence an ever-widening body of surgeons.

" But it is probable that simpler and more homely personal traits have been of equal importance in prompting us to keep his memory fresh in Guy's.

" On many occasions each one of us has had reason to acknowledge his kindness, and to recognise his unselfishness and complete lack of jealousy. It is, in fact, because we have the very strongest affection for the Master that a presentation which is, from the professional standpoint, a duty, becomes, from the personal point of view, a very keen pleasure ; and it is our hope that he will regard Captain Newling's portrait as a small acknowledgment of our indebtedness to his teaching and example.

" With very real affection and respect, we, his former House Surgeons, ask you to accept the portrait of our Chief."

The Treasurer, in expressing his great pleasure in having within the Hospital a portrait of so distinguished a son of Guy's, congratulated the artist in having captured something more than a photographic likeness of his sitter.

Sir Arbuthnot Lane was then called for. He said he was so moved by this expression of affection from his old House Surgeons that he was quite unable to express himself. Whatever success had followed his surgical efforts had been entirely due to the willingness and enthusiasm of his House Surgeons.

Hospital Appointments

Guy's Hospital Medical School

THE following appointments and re-appointments have been made by the School Council, duties to commence on October 1st, 1932 :—

Clinical Tutor with Charge of Preliminary Clinical Period Class—
Mr. E. R. Boland.

Medical Registrar—
Mr. E. T. Conybeare.

Surgical Registrars—
Mr. W. J. Ferguson.
Mr. P. V. Reading.

Demonstrator of Anatomy, Whole-time—
Mr. D. W. C. Northfield.

Demonstrator of Anatomy, Part-time—
Mr. T. T. Stamm.

Demonstrator of Physiology, Part-time.
Mr. G. A. M. Lintott.

Demonstrator of Pathology, Whole-time, with Charge of Clinical Laboratory—
Dr. F. A. Knott.

Demonstrator of Pathology, Part-time.
Mr. G. A. M. Lintott.

Anderson Demonstrator of Clinical Chemistry.
Dr. G. H. Oriel.

Demonstrator of Chemistry, Whole-time.
Mr. W. M. Colles.

Demonstrator of Chemistry, Part-time.
Mr. E. Matthews.

Demonstrator of Biology, Part-time.
Mr. J. H. Jackson.

Demonstrator of Operative Surgery, Part-time.
Mr. N. L. Eckhoff.

Griffiths Demonstrator of Pathology—
Mr. S. De Navasquez.

Adrian Stokes Memorial Fellowship—
Mr. J. M. L. Burtenshaw.

Guy's Hospital Dental School

THE following appointments and re-appointments have been made by the School Council, duties to commence on October 1st, 1932 :—

Dental Tutor and Supervisor—
Mr. H. H. Kenshole.

Registrars in the Dental Department for Children—
Mr. R. Cutler.
Mr. R. E. Rix.

Assistant Anæsthetists to the Dental School—
Mr. E. R. Bailey.
Mr. R. Cutler.
Mr. R. Jarman.
Mr. B. R. Medlycott.
Mr. N. E. Pitt.
Mr. R. E. Rix.

Demonstrators of Dental Prosthetics.
Mr. D. S. Clogg.
Mr. M. A. Rushton.
Mr. G. G. T. Tregarthen.
Mr. E. Matthews.

Demonstrators of Operative Dental Surgery—
Morning Attendance—
Mr. C. S. Henderson.
Mr. S. C. Holms.
Mr. J. A. C. Hunter.
Mr. J. W. Mansie.
Mr. C. L. Stevens.
Mr. G. S. Loader.

Afternoon Attendance—
Mr. K. S. Keele.
Mr. F. S. Warner.

Demonstrator of Dental Bacteriology.
Mr. C. S. Henderson.

Assistant Curator of Dental Section of Gordon Museum—
Mr. F. S. Warner.

The Nursing of Genito-Urinary Cases

A Lecture delivered to the Nurses of Guy's Hospital on 28th June, 1932, by A. R. Thompson, Esq. Ch.M., F.R.C.S.

LECTURE II
RENAL OPERATIONS

BEFORE an operation is carried out on a kidney, the urine should be collected as in cases of enlarged prostate, and the amount should always be recorded in English letters and numbers. There are several preliminary examinations that have to be prepared for by the nurse, such as X-rays, and the injection of some opaque material into the pelvis of the kidney, which is known as " pyelography," and this is done through a cystoscope ; or a drug which has come into fashion lately, known as uroselectan, may be injected intravenously. This is secreted by the healthy kidney and renders the bladder, ureters and kidney opague to X-rays.

Certain chemical tests as to the efficiency of the kidneys are also made, such as the proportion of urea in the blood, and also in the urine after urea has been administered. The latter test is known as the urea concentration test, and requires that three specimens of urine must be collected at definite intervals after the administration of the urea.

Curiously enough, these tests are almost more important in diseases of the prostate and the bladder than in disease of the kidney. I have only seen one case of renal failure after an operation on the kidney, but I have seen a good many after such an operation as prostatectomy.

The nurse should know that renal failure may involve the failure of other organs than the kidneys, and it is worth noting that many cases of renal failure die of cerebral, cardiac or respiratory disease.

The area of compress before a renal operation is larger than might be expected. I am assuming that you all know how to compress the skin for an operation. In the case of a renal operation the area which is to be cleansed should extend from the nipple line above to the level of the great trochanter below, and from the far side of the vertebral column to the far side of a vertical line drawn through the umbilicus.

After the patient has been anæsthetised nurses may render indispensable assistance in getting the patient into the correct position for operation. There are two special points for them to pay

attention to. The patient is to be laid on the opposite side to that on which the operation is to be performed. The upper side, that of the operation, is to be vertically above the under side—that on the table. The upper side should be convex upwards between the costal margin and the iliac crest. For this purpose a large block which must be rigid is placed beneath the under side of the patient. This block should lie at the level of the waist of the body, and the patient should be so balanced on the block by careful adjustment of the lower limbs as to allow of his lying securely. Balance is all important, but it may be assisted by the use of an arm-rest, which is used for supporting the arm of the side affected, *i.e.*, the arm on the upper side of the patient. If we recollect that the body is to be squarely set so that the upper side is vertically above the under side, this is all that need be mentioned.

Some arrangement must also be made in order to produce pressure upon the front of the abdomen so that the kidney may be brought easily into the wound, when the incision has been made. When the kidney has been operated upon, but before the wound has been sewn up, it is everybody's duty to note that the sponges which have been used are all accounted for.

I have adopted the plan of having sponges of large size with black ribbons at one corner and numbered with Roman figures as on the face of a watch, thus, I, II, III, but the fourth number is thus IIII, then V and VI. The reason of the IIII is that the number IV looked at in reverse is VI. Thus there can be no confusion. I draw particular attention to this counting of the sponges as the wound is very deep, and there may have been anxious bleeding, under rather trying circumstances.

After the operation the nurse's important duty is to examine the pulse regularly every hour. What is known as concealed hæmorrhage may occur, in which case the bleeding does not take place externally but internally, and passes into the tissues or cavities in connection with the kidney.

A patient might conceivably die of hæmorrhage without there being a sign of any blood upon the bandages, when such concealed hæmorrhage is occurring. If the pulse becomes rapid and weak this should be reported to the surgeon at once, but whilst he is coming the nurse should apply a thick pad to the front of the loin and fix the bandage as tightly as possible over this pad.

The urine frequently contains blood after an operation on the kidney, and until the urine is free from blood the patient should not be allowed to exert himself in the slightest degree. Some of the most anxious cases are just these cases that show blood in the urine after an operation upon the kidney, and let me repeat that no exertion must be allowed until the urine is free from blood. Do not be led astray by what other people may think. If the patient is bleeding, he is an anxious case, and must be treated accordingly.

Any collection of fluid that develops in connection with disease or injury of the kidney usually points on the front of the side of the loin, and after an injury or operation the nurse who may have to dress such a case should always palpate in front of the wound so that she may feel any collection of fluid. Also if nurses dress renal operation wounds they should see that the wound is being properly drained, and also that the upper edge of the wound does not overlap the lower edge. This overlapping occurs exactly in proportion as the wound is left open. The larger the opening left for drainage the more likelihood there is of this overlap occurring.

CIRCUMCISION

This is a very common operation and is more frequently performed on adult patients than might be supposed by nurses. In adults it is a more dangerous operation than in infants, as it is usually done for septic trouble or under septic conditions such as are associated with an adherent foreskin.

The nurse may have to perform several duties in connection with the management of this type of case. First the patient, even if he is only admitted on the day of operation, should have been put on a light diet for two days before the operation. He should have had his bowels attended to, and, above all, he should have had five grains of potassium bromide every four hours for two days before the operation, and this drug should be administered for the whole time that the wound is healing up. The patient should not be allowed to see any visitors for at least two days after the operation. In adults an anchor dressing should be applied, which is a dressing that is fixed in position by the same sutures as have been used to unite the edges of the wound. The dressing does not slip, and prevents rubbing of the bedclothes or trousers upon the wound. If the sutures that are used are of catgut, the dressing will come off of itself after the catgut has been absorbed.

Deaths from suppurative nephritis are not uncommon after such an operation as circumcision in adults, and may be rightly regarded as disastrous, and the nurse should be on the look-out for any untoward symptom that may indicate such a condition coming on. If bleeding occurs after circumcision the surgeon should be sent for at

once, and whilst he is coming the nurse should apply a light tourniquet to the base of the penis and fix it in position so that it does not slip. This tourniquet will not have to stay on long, and can be removed easily when the surgeon arrives. I have known a case of death after circumcision in which the bleeding was due to hæmophilia. I have also known a case of death after circumcision due to diabetes, and the nurse may render valuable aid in trying to elicit the history of such cases.

DRAINAGE OF WOUNDS AFTER GENITO-URINARY OPERATIONS

For the purposes of drainage of a wound either gauze or glass or indiarubber may be used. With the presence of the two last materials for drainage sickness may occur, which stops directly the drain is removed. This applies not only to renal, but also bladder wounds. Whatever material is used, it must be scrupulously clean. The inside of tubes that are used and are in stock should be carefully looked to at regular intervals. If they are dirty they should be cleaned with a weak solution of oxalic acid, care being taken that the oxalic acid is all removed from the tube before use, and the bottle of oxalic acid should be always stored with other poisons and the bottle marked "Not for internal use." Gauze, too, should not be frayed at the end that is introduced into the wound, and gauze should never be cut again after it has been adapted to the wound. A small portion may otherwise remain in the wound and give rise to trouble.

A good way to remove a gauze drain from a wound is to wash the gauze with warm water and apply sterilised paraffin to the gauze, and then gently twist the drain in the wound and leave it for removal the next day.

My experience is that nurses do not quite understand the difference between plugging a wound and draining it. We plug a wound for bleeding and when we want to enlarge it, but we drain a wound for the purpose of getting away products such as pus, serum or urine. The direction of the wound should be ascertained first with a probe that should not be too small or sharp. The probe should always be straight. Certain surgeons and nurses seem to have the idea that probes are, in fact, corkscrews, and this is wrong. They should always be used straight, at any rate at first. After the direction of the wound has been found out, then the nurse should take a large sinus forceps, with blunt ends over the doubled ends of a piece of gauze. She should then close the blades and introduce them with the gauze into the wound. If it is required that the wound should be plugged, then the blades are opened and more gauze pressed into the wound so that bleeding is really controlled. Successive similar steps are taken till the whole wound is tightly plugged.

When draining a wound, on the other hand, the gauze is similarly introduced with the blades of the forceps, and when it is at the bottom of the wound the blades are opened and detached from the gauze and the forceps only removed from the wound. The gauze is thus lightly packed in the wound and affords an exit for the material that has to be drained away.

If glass drains can be used, I prefer them to any other form of material, as they can be so easily kept clean and inspected.

Now I have often thought that nurses did not quite realise that a wound may extend into the deep tissues along a path that is not always easy for them to comprehend. So I will digress here to indicate to you what the direction of wounds is beneath the skin after incisions have been made in connection with genito-urinary operations.

I have already indicated to you the direction of the wound which is made for suprapubic operations upon the bladder, but there are other routes than this one for opening the bladder, especially the perineal route, when the patient is laid in the lithotomy position. You must remember that the direction must always be taken relative to the erect position of the body, *i.e.*, with the face and front of the body looking forwards and the toes turned forward, and the arms so turned that the palms of the hands look forward and the thumb is on the outer side of the hand. In perineal wounds of the bladder the direction is forwards and upwards and slightly inwards. Such wounds go up towards the umbilicus, and not at all towards the rectum. In fact, the wound should be directed well away from the rectum. In kidney wounds, which are usually made in the loin, the direction of the wound is upwards, inwards and backwards.

Whilst we are on this subject let me mention an important matter in connection with wounds that are made in operations upon the testicle. The scrotum is rather a septic sort of area, with its rugose skin and other disadvantages leading to sepsis. For testicular conditions, wounds are usually made higher up than might be expected, so as to avoid, as far as possible, this septic scrotum. Now after operations upon the testicle, bleeding, not of a serious nature but distinctly inconvenient, may occur, for the hæmorrhage may induce sepsis, and in any case will lead to slowing of the healing process. For this reason a drain is usually put down to the testicle or its cavity, and the wound is thus directed downwards, backwards and slightly inwards. There is another point in

connection with these wounds that the nurse should know. She should have a finger bandage ready, which the surgeon will apply over the scrotum, but she will also have a needle and thread ready for the purpose of sewing on the bandage so that it does not slip off. Owing to the bandage the patient may have some difficulty in passing water after such an operation, and this should be reported to the surgeon when it is manifest.

ALCOHOL

Nurses may find out things about patients which the surgeon has no opportunity of eliciting, as patients do not always tell him the truth about their previous alcoholic history. If there is any reason to suspect that the patient is accustomed to alcohol, then he should be allowed to have a glass of brandy and water or whisky and water by the side of his bed, especially at night. In many cases he will not drink it, but in the early hours of the morning he may want some, and if it is not handy he may pass a bad night, and be all the worse next day. I have often felt grateful to nurses for affording me information about the alcoholic habits of patients.

THE MANAGEMENT OF A CATHETER

Definition of the term "catheter."—A catheter is an instrument for draining the bladder; it must therefore be hollow. Of necessity it is passed through the uretha into the bladder, but it is not really a urethral instrument, though it may be convenient to use it for dilating or only passing structures.

There are several kinds of catheters. They may be made of metal, and are then usually known as silver catheters or whatever the metal may be, but I hardly ever use them, as I think they must damage a bladder that is drained efficiently by them, though they are in common use, I find, amongst general practitioners.

They may be made of gum-elastic, and then they are provided with a metal stilette, which should never be allowed to become rusty and should not be in the catheter when it is inserted except under very special circumstances. I never use this form of catheter, but I always have one ready as they are the only instrument that can be passed in connection with an enlarged prostate under certain circumstances. I keep mine strongly curved by means of the stilette, so that it shall maintain this curvature when it is being passed without the stilette.

The most common material is caoutchouc, and such catheters are either olive-headed at the bladder end or they are curved quite at the end, and are then known as coudé catheters. The olive-headed ones are used for stricture cases and the coudé catheters for enlarged prostate. As a rule, small olive-headed catheters are used for the retention which is due to stricture and large coudé catheters for the retention which is due to enlarged prostate.

When a catheter is in position it is tied in under certain circumstances, and the nurse should know something about the steps which should be taken to insure that the catheter is really doing its work. Needless to say, the catheter should be scrupulously clean and patent, and this patency should always be established before use.

When it is intended that the bladder should be drained with a catheter, then the catheter may have to be tied in, and the nurse must see that the catheter is acting efficiently. A common cause of it not so acting is the fact of the catheter slipping away from the cavity of the bladder.

The level of the catheter when it is in the bladder should always be noted. This can be done, as a rule, by seeing the letters of the maker's name, and when the parts are in an easy position with the catheter working all right noting how far the meatus urinarius is from the lettering or figuring. If the catheter has slipped out, then it must be pushed into the bladder until fluid comes along the catheter, or if it be too far in, as may be the case, then it must be pulled out slightly. The latter event occurs more frequently with enlarged prostate than with stricture.

Air-block may occur in the tube leading from the catheter, and some surgeons prefer that the catheter should drain directly into a bottle in the bed, but I prefer a tube to be attached to the catheter, and air-block may be avoided by seeing that the tube does not come over the thigh but under it, and that the catheter and tube should be fixed in some way with adhesive plaster to the thigh so as to insure the weight of the tube not coming on the catheter and allowing it to slip out of the bladder.

The tube itself may be fixed to the thigh and also to the side of the bed, but the drainage is hardly ever, as it should be, into a vessel on the floor, but the receiving vessel is fixed out of sight to the side of the bed, and this position does not give sufficient fall for the urine to come away properly from the bladder. Air-block can be got over by using a clean tube, and if it occurs then the tube should be raised and the confined air-bubble expelled by fluid pressure into the cavity of the bladder, from which it will escape when the bladder empties itself.

The method for tying in a catheter in the case of a female.—Various forms of self-retaining

catheters are on the market, but they all require some deftness, or pain may be caused either when being inserted or when being removed, the latter especially.

A good method of tying in a catheter in a woman is as follows. A large coudé catheter having been inserted into the bladder, pieces of adhesive plaster about eight inches long and half an inch wide are cut, and laid in order on the bed or table with the adhesive side uppermost. The catheter is gently pulled to one side of the body, and thus brought near to the thigh, usually the right thigh. When it is lying in an easy and painless position, a piece of strapping is taken and passed over and under the catheter. It is just fixed to the catheter at first, but then the parts of the strapping that has gone round the catheter are brought together, so that the two parts are sticking to each other for a distance of about an inch. The ends are kept apart and fixed to the skin of the thigh, each end going in an opposite direction. Another piece is laid on the catheter in a similar manner, only the adherent parts of the strapping must not be quite so long, and if this is repeated two or three times the catheter will be lying at its lowest part in actual contact with the thigh, to which it is fixed with an ordinary piece of strapping without any riding part at all. Then a tube may be fixed to the catheter, and the weight of the tube is not borne by the catheter, which would slip out of the bladder if it were so borne, but by the strapping that fixes the catheter to the thigh.

INSTRUMENTS THAT ARE COMMONLY USED IN URINARY SURGERY

The definition of a catheter and its uses and functions have been noted before, and it will be useful for the nurses to know similar facts about other instruments. These are bougies, sounds, and urethroscopes and cystoscopes. Much time is being constantly wasted in the theatre or operating-room by nurses who have not the least idea about these common instruments.

A bougie is a solid instrument that is used for the purposes of dealing with the urethra. They must of necessity go into the bladder, but they are not bladder instruments. They may be made of metal or some softer material.

A sound is an instrument for examining the bladder, and of necessity must go through the urethra, but it is not a urethral instrument. It is the very worst instrument for passing through a stricture, and it was not designed for this purpose. Metal bougies are frequently called sounds, but this is a misnomer, and the mingling of the terms should not be allowed, especially by teachers.

A urethroscope is an instrument which is designed to allow visual examination of the urethra, and through which operations may be performed without an incision having to be made, but nurses will do well to recollect that their use is not unattended with risk, and careless use may do harm.

A cystoscope is an instrument which is used for visual examination of the bladder and for operations of minor nature in connection with the cavity of the bladder. The cystoscope is also used for examining the kidneys individually, chiefly by the passage of catheters along the ureters, and also by the examiner being able to detect differences in secretion of either urine or some dye which has been previously injected into the body, usually intravenously.

An instrument which depends for its value on visual examination should never be boiled.

CYSTOSCOPY

This is a very common form of examination, and the nurse should be ready to render every assistance that she can do. The patient should be prepared as for an anæsthetic, but it is very rarely that one is really necessary in the hands of a reasonably gentle surgeon. Moreover, an anæsthetic tends to disturb very much the secretion of the kidneys, and for this reason is undesirable, as no definite standard can be made upon which to act in what may be regarded as a scientific chemical examination of the secretion of the kidneys.

Whenever an instrument is to be passed along the urethra care should be taken that the patient passes water at least two hours before the examination, and not after this time. Nurses often allow patients to pass their water just before examination, but if this is allowed then the bladder will be empty when the cystoscope is passed, and then the passage of the cystoscope is rendered more difficult.

In a hospital theatre the head nurse should make herself responsible for the upkeep of a cystoscope. There are several parts that may get out of order unless the nurse knows how to look after them properly. Screw caps are apt to be screwed home far too tight, and this leads to perishing of any rubber valves there may be under the cap. Screws should be loose when the instrument is not being used, and when about to be used the caps, etc., should be screwed home very lightly indeed.

Lamps should be taken more care of than they usually are, and for this reason the nurses in the theatre at Guy's Hospital are instructed carefully in their work in connection with a cystoscope, and this instruction will be repeated here.

It chiefly concerns the lamp which illuminates the bladder, and lies at the bladder end of the cystoscope. This lamp is an electric lamp, and is sufficiently lit up by a voltage of three volts. A new dry battery such as those that are sold for hand lamps may be too powerful for the lamp of a cystoscope, and may lead to its fusing. For this reason there should always be some plan adopted for reducing the current that is going to go through the lamp in order that it may be illuminated. This reduction is produced by some form of resistance that is capable of being increased or decreased by a sliding ring of metal. There should also be an ordinary electric lamp in the circuit if the main supply is being tapped for the light on the cystoscope.

The resistance is sometimes supplied in the form of a portable rheostat. This consists essentially of a piece of German silver wire. Now this wire is coiled simply for the purpose of convenience, as a long, straight piece of fine wire is not a very convenient form of carrying it. It is interesting to note that fine steel wire (not copper), such as is used for decorations, will act most efficiently as a resistance, and may well be used if anything happens to the more elaborate rheostat. Its resistance is, however, much lower than that of German silver wire of corresponding size.

Now suppose that the piece of wire is straight, then if we have a wire put on to it at varying distances we shall get a current less or more according as to where we put the connecting piece of wire. If we put this wire exactly on the distal end of the straight piece, then we shall have the current going through the whole of its length, and we shall have the advantage of the whole of its resistance, but if we place the detachable wire nearer the source of the supply then we shall have only a part of the silver wire used for the purposes of resistance, and so the current going through the circuit will be increased. But this would be a highly inconvenient form of instrument, and so the silver wire is coiled, thus taking up much less room, and a metal ring is so arranged that it shall run easily over the coil. According as to whether this ring allows only a little part of the resisting wire to be used then we shall have only a small part of the current cut off by the resistance, but if we place the ring so that the current has to pass through the whole of the wire, then we shall have the current reduced, as it has to pass through more resistance. Some form of rheostat or portable resistance should always be used for resistance in case of a small dry battery being used, as without its use this current may be too high for a cystoscopic lamp. One great advantage of a dry battery is its easy portability, but one great disadvantage is that one never knows for certain when it is going to run down.

On the other hand, the disadvantage of a main circuit as a source of supply is that the current is sometimes earthed, as it is called. The return takes place through the ground, and for this reason very unpleasant shocks may be received by the operator if his feet are wet by standing on wet floors. So in wet weather always provide an indiarubber sheet for him to stand upon.

The nurse should always turn down the resistance so that it is allowing very little current to pass, and then the electric connection with the cystoscope may be adjusted. This being done, then the resistance may be gradually lowered until the lamp is of sufficient brightness to properly illuminate the bladder when the cystoscope has been passed.

Whenever a fresh cystoscope is used or a new lamp provided then the nurse should turn the resistance so that the minimum current is passing. New lamps take much less current than old ones, and a new lamp may be fused when an old one, with the same current, may hardly be bright. I like the nurses to arrange that everything is ready for the surgeon up to the illumination of the lamp.

Before use, if there is a detachable optical tube this should be left in the box which is provided with some solid form of antiseptic capable of giving off vapour that is also antiseptic, *e.g.*, some form of solid formalin, but the other part may be put into (but not stored in) lysol or other efficient antiseptic.

The cystoscope, being ready, is introduced, and then the optical part being removed (for it should be inserted for the passage of the instrument), the bladder is irrigated. There is no use in doing a cystoscopy unless the fluid in the bladder can be rendered clear. For this purpose a tube with a three-way tap is provided, which fits into the cystoscope when the optical apparatus has been removed. A funnel capable of holding about four or five ounces or 120 c.cm. is to be provided, and this is connected by means of an indiarubber tube to the three-way tube on the cystoscope. Fluid is allowed to run in slowly from the funnel at first, but if the bladder shows no signs of irritability then the fluid may be allowed to run more quickly. The funnel should be of rather small calibre, and the funnel part of a glass syringe of suitable size is a very good form of funnel. The funnel should be rather narrow, as it is easier for one to see if fluid is flowing in a small funnel rather than when the fluid is being supplied from the usual type of irrigating funnel. About 175 c.cm. should be allowed into the bladder, as this is sufficient to dilate the cavity of the bladder for the purposes of

doing anything in the bladder, without causing the patient to want to pass water.

Nevertheless, a large funnel may have to be used, and it is rather interesting to note that with a funnel of 10 centimetres in diameter (which is a perfectly reasonable measurement to take), if an inch of fluid is allowed to flow into the bladder then 200 c.cm. have been discharged, so a little less than an inch of fluid will give us the necessary amount of fluid in the bladder.

The three-way tap should be removed when the fluid runs clear after filling up the bladder, and then the surgeon can continue his examination.

I have gone into these details as I believe the nurses are interested in knowing about these things, and this form of knowledge gets rid of the mystery that so often and quite naturally forms round these examinations.

A lithotrite is an instrument for crushing stones in the bladder. During storage of such an instrument the parts should be kept separate, and kept well oiled, and care should be taken that the various parts are in the same box and do not get mixed up or lost. A glass box is a suitable receptacle for such instruments, as absent parts can be at once noted. "Out of sight, out of mind," is none the less true because it may concern the storage of surgical instruments.

No one is more conscious than the lecturer that these lectures may not be quite the instruction that nurses want in connection with genito-urinary work, but he would plead that he would expect any nurse who was helping him to know the points that he has raised. There should be no mystery about this type of case, and genito-urinary patients should have as much attention paid to them as, say, cases of appendicectomy. Good nursing in the cases with which we have dealt in these two lectures will mean a life saved in many cases, and I regret to say also that bad nursing may mean a life lost.

How is the Condition of the Teeth of Special Importance to Medical Practitioners?

B.M.A. Prize Essay, 1932, by L. Cosin, Esq.

IN a paper on this subject it is usual to consider the effects of dental disease upon the body, and there is no doubt that this is an exceedingly important side of the question. It would be erroneous, however, to consider this side to the exclusion of any other, and I shall, in this paper, attempt to redress the balance.

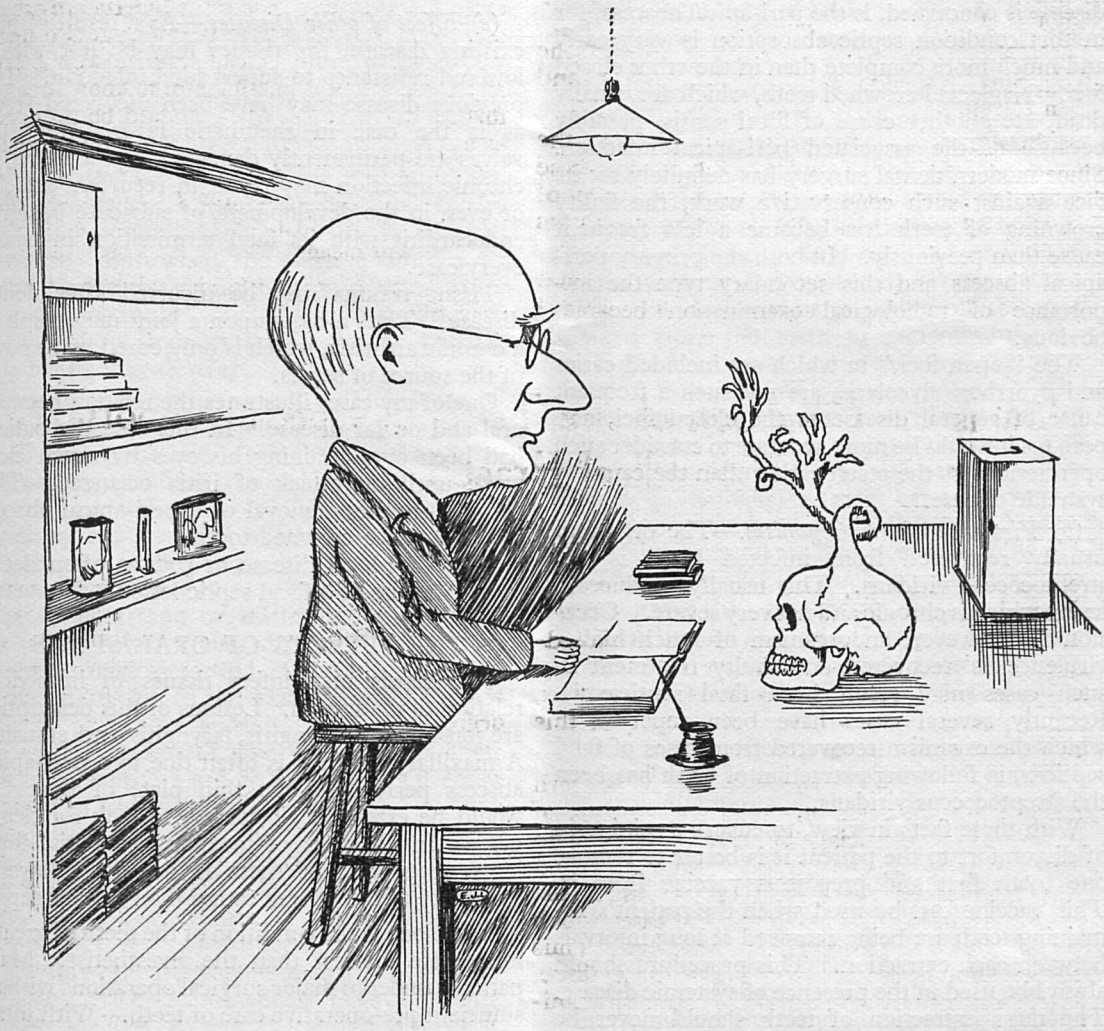
Those cases in which the condition of the teeth is a local manifestation of a general disease are of interest to the physician, for they enable him to survey familiar diseases from a different aspect. The experienced dental surgeon can assist the physician in arriving at a diagnosis of cases which would otherwise be of greater difficulty. Thus the condition of the teeth may be the cause, direct or indirect, of systemic disease or the local manifestation of general disorder.

I.—DENTAL DISEASE AS A CAUSE OF SYSTEMIC DISEASE

We are now passing through an age when the theory of focal sepsis, as a cause of systemic disease, is suffering from the reaction which always follows a period of gross over-estimation. It should now be possible to appreciate the true worth of this theory.

Towards the end of the nineteenth century William Hunter, whose name is associated with the lingual changes in pernicious anæmia, drew attention to a series of cases in which there was not only a "septic gastritis," but also a profound degree of anæmia. He records the case of a young man with a hæmoglobin of 10 per cent. and a red cell count of 500,000 per cubic millimetre. Examination of the mouth showed two septic teeth and the buried root of a first molar. Removal of these foci resulted in the gradual recovery of the patient. In 1900 Hunter attended a post-mortem on a case of pernicious anæmia, when "the sinuses were found to be full of pus and most of the remaining teeth were suppurating," and he regarded this as the sole ætiological factor. While pernicious anæmia is not now considered to be due solely to oral sepsis, there is no doubt that profound microcytic anæmias may be so caused, and that these latter, in time, may rarely become pernicious in character. Soon after 1900 Hunter visited America, where his conclusions were fully recognised, and much research was subsequently performed to substantiate them in that country.

In discussing the effect of dental sepsis it must be recognised that soil and seed are of equal importance, and that its effects depend upon a



VERY MORBID ANATOMY

series of predisposing and precipitating factors, among which are :—

(*a*) *Localisation of Infection.*—The most significant oral lesions are those in which very little or nothing can be seen on superficial examination. These can be arbitrarily described as "closed foci," and include such conditions as devitalised teeth, buried roots and peri-apical abscesses. Perhaps the severest lesion, as far as general disease is concerned, is the peri-apical abscess, for in this condition septic absorption is very early and much more complete than in the other closed foci. Neglected crowned teeth, which are usually dead, are another cause of focal sepsis, possibly because of the associated peri-apical infection. Since modern dental surgery has definitely set its face against such conservative work, the faulty crowning of teeth has become a less frequent cause than previously. In both the primary peri-apical abscess and this secondary type the importance of radiological examination becomes obvious.

The "open foci," in which are included caries and pyorrhœa alveolaris, are not such a frequent cause of general disease as the closed foci, and perhaps it would be more accurate to consider such open lesions as the result rather than the cause of systemic disease.

(*b*) *Virulence of the Organism.*—The organism usually recovered from infected teeth is the streptococcus viridans. This usually produces a lesion which is chronic and not very severe. Occasionally, however, an organism of much higher virulence is recovered and faulty treatment in such cases may result in a fatal septicæmia. Recently several cases have been reported in which the organism recovered from cases of fatal septicæmia following extraction of teeth has been the streptococcus viridans.

With these facts in view, to ensure a minimum of discomfort to the patient it is better to remove one tooth first and prepare a vaccine from it. This vaccine can be used when the patient's remaining teeth are being removed at long intervals between each extraction. This procedure should always be used in the presence of systemic disease. The mass extraction of teeth should never be performed when the patient is severely ill.

(*c*) *Resistance of the Patient.*—The patient may become very weak or anæmic (as in Hunter's early cases) from the continued toxic absorption. Ultimately a vicious circle is set up, in which toxic absorption will cause a lowered resistance to infection, and the lowered resistance will result in increased toxic absorption. Owing to his lowered resistance, the patient will be in danger of succumbing to inter-current infection as well as to his auto-intoxication. Because of the latter, treatment must be very careful, as any sudden increase in toxic absorption may be fatal.

(*d*) *Effect of Heredity.*—The work of Weston Price will be referred to in detail in this paper. This shows that patients with a good family history, as regards the reaction to rheumatic infection and dental disease, are less liable to severe systemic disease following dental sepsis.

(*e*) *Effect of other Diseases.*—As a result of pre-existing disease, the tissues may be left with a lowered resistance to superadded infection. The previous disease may have been recovered from, as is the case in rheumatic fever. Here the valves are permanently damaged, and a source of chronic infection may result in recurrent attacks, or even in the development of subacute bacterial endocarditis with its fatal termination in nearly every case.

Tissue trauma may be incurred after dental disease. Thus a blow upon a joint may result in a chronic arthritis, which is only cured by removal of the source of sepsis.

One of my cases illustrates the relation between oral and ocular disease. In this case the patient had been over-straining his eyes by much close work until an attack of iritis occurred. This cleared up after removal of a peri-apical abscess secondary to a crowned tooth.

Therefore local disease or trauma often determines the site of a focal septic lesion.

THE EFFECTS OF ORAL SEPSIS

Oral sepsis may infect tissues in immediate relation to the mouth. Lesions of this description are tonsillitis, pharyngitis, laryngitis and sinusitis. A maxillary sinusitis is often due to a peri-apical abscess perforating the thin plate of bone. It would be erroneous, however, to look for dental disease in all cases of maxillary sinusitis, for a large proportion of these is due to a lowered resistance of the patient rather than to local sepsis.

To no one is the condition of the teeth of greater immediate interest than the anæsthetist. Many patients undergo major surgical operations without sufficient pre-operative care of teeth. With intra-tracheal anæsthesia the risk is correspondingly greater, for during the manipulation of the direct vision laryngoscope loose teeth or septic material can be easily displaced into the respiratory tract. This may result in a septic broncho-pneumonia, pulmonary abscess or even gangrene of the lung.

In cases of bronchiectasis, examination has shown that fuso-spirillary organisms are often recovered from the cavities. These organisms are very similar to those occurring in the mouth, but

whether or not they are only secondary invaders of the bronchi has not yet been proven.

Following operations upon the stomach the patient has very often to be put upon a restricted diet for a few days. During this period, with a dry mouth and the presence of dental sepsis, a parotitis may develop. Most of these cases could be prevented by careful pre-operative treatment of the mouth.

The relation between the condition of the teeth and disorders of the gastro-intestinal tract has been thoroughly investigated. Hurst is of the opinion that the average person does not masticate his food sufficiently, so that the delicate gastric mucosa is exposed to additional bacterial, thermal and mechanical irritants. To the person with a healthy mouth and a normal quantity of hydrochloric acid in the gastric juice this is of little importance. But when the large quantities of bacterial irritants, swallowed by persons with advanced pyorrhœa, enter an achlorhydric or hypochlorhydric stomach, then a chronic gastritis or duodenitis may develop.

The resulting catarrh causes a thick layer of mucus to adhere to the surface of the gastric mucous membrane and block the mouths of the acid-secreting glands. The achlorhydria is due partly to this and partly to the alkaline mucus neutralising any free acid which may gain access to the lumen of the stomach. This causes an increased alkalinity of the duodenum and enables oral streptococci and organisms ascending from the colon to grow in a normally sterile area. The hæmolytic toxins produced in the intestine give rise on absorption to the blood changes characteristic of pernicious anæmia, while the neurotoxin, similarly produced, gives rise to degeneration of the spinal cord. Chronic gastritis may precede carcinoma of the stomach.

Bennett and Ryle have shown that 10 per cent. of normal individuals are hyperchlorhydric. This proportion is increased by the toxic hyperchlorhydrias due to such causes as excessive tobacco smoking and the reflex hyperchlorhydrias in patients suffering from cholecystitis and chronic appendicitis. These individuals have a rapidly emptying stomach, so that the gastric mucosa is left open to bacterial irritants for a longer period than normal in the presence of oral disease. The chronic peptic ulcer is probably due to an original superficial erosion developing into an acute ulcer; this fails to heal because of a number of inimicable factors among which are included oral sepsis, mechanical irritation by insufficiently masticated food, the action of acid on an area of lowered resistance and a rapidly emptying stomach. The acute ulcer may be due to the swallowing of bacterial irritants or hæmatogenous infection from septic foci. This brings us to the theory of focal sepsis as a cause of systemic disease.

Before condemning the teeth as the cause it is necessary to undertake a thorough examination of the patient to exclude all other possible foci of sepsis. We have already seen how the teeth can directly infect the sinuses. In this way two foci may be present when the patient is examined by the physician. Very often it is difficult or impossible to state which of teeth or sinuses was the primary seat of infection.

Much experimental work has been performed to prove that lesions of the teeth can cause blood-borne infection elsewhere, often on insufficient or no bacteriological evidence. Rosenow and his colleagues have helped to remove this objection. His theory of the elective localisation of bacteria has cast a new light on focal sepsis as a source of systemic disease. Briefly stated, his contentions are that the intravenous injection of bacteria cultivated from the teeth of patients suffering from a general disease, can reproduce the same disease in experimental animals. Most of the cultures have been made from closed foci of sepsis, the most frequent of which is the peri-apical abscess. From this lesion a streptococcus of low virulence (s. viridans) is most often recovered. With cultures of this organism Rosenow, Haden, Meisser and Bumpus in America, and Wilkie in England have produced much experimental evidence to prove their contentions.

Rosenow's work has been chiefly in connection with the urinary system, and he has succeeded in cases of nephrolithiasis of reproducing identical lesions in rabbits.

Haden has brought forward similar evidence with regard to the ætiology of gastric and duodenal ulcer, while Bumpus and Meisser have shown that nephritis and cystitis can be caused by streptococci recovered from infected teeth. Their work is so convincing that it would be of advantage to quote their conclusions. They made cultures from the teeth of patients suffering from nephritis and succeeded in reproducing this disease on injection into one group of rabbits. They then injected the bacteria obtained from the first group of rabbits with nephritis into another group of the same animals, and again reproduced this lesion. This was performed a third time with success.

Primary culture into 27 rabbits caused nephritis in	89%
And nephritis and cystitis in ..	30%
Secondary passage into 11 rabbits caused nephritis in	63%
And nephritis and cystitis in ..	22%

Tertiary passage into 6 rabbits caused
nephritis in 50%
with nothing elsewhere.

The presence of nephritis was confirmed by post-mortem examinations of the kidneys, and catheter specimens of urine in which blood, casts and albumen were found. Bumpus and Meisser prove their assertion that this strain of bacteria was specific for the urinary system, by another series of experiments in which, of 208 rabbits injected with cultures of s. viridans obtained from the teeth of patients with non-renal lesions, only 7, or $3\frac{1}{3}$ per cent., showed renal lesions.

Wilkie, of Edinburgh, has shown that cholecystitis is often due to blood-borne infection from septic teeth. On culturing extracts of the mucosa of infected gall bladders he obtained a positive result in only 20 per cent. of cases, whereas cultures of the sub-mucosal and deeper tissues showed a positive result in over 80 per cent. This he attributes to the assumption that the infection was hæmotogenous and did not ascend the bile ducts.

All this evidence appears to be overwhelmingly in favour of Rosenow's contentions, but before accepting them it would be better to examine the criticisms levelled against them. Wilkie's results come into sharp conflict with those of Knott; the latter, working in this hospital, showed that over 60 per cent. of the samples of bile recovered from patients with symptoms of cholecystitis gave, on culture, a growth of coliform bacilli, whereas streptococci were never found.

Detweiler and Robinson (1916), and Moody (1916) uphold the view that streptococci, similar in all respects to the s. viridans of Rosenow, occur in normal mouths, and if a sufficiently large dose be given it will produce systemic lesions in rabbits. Moreover, recent work has shown that cultures of the apices of normal teeth extracted for cosmetic purposes and showing no signs of inflammation, have yielded a growth of s. viridans.

Kellaway, working under conditions similar to those of the American School, was unable to produce arthritis in laboratory animals. He concludes that, while admitting the intimate association between chronic apical infection and lesions in other tissues, he is loath to accept the elective localisation of bacteria in other animals until their pathogenicity for man has also been proven; also, that all apical infections cannot be regarded as being either actual or potential sources of danger to the patient.

While Kellaway's conclusions are no doubt correct, one cannot help thinking that much illness would be avoided if peri-apical infection were regarded as a potential source of ill-health.

We have already seen how dental disease affects the alimentary and urinary systems, and indeed it can affect almost any tissue in the body, while William Hunter records cases of insanity cured by the removal of septic teeth. There would be no point in enumerating the multitudinous complaints cured by eliminating dental sepsis; instead, two cases illustrating this will be described.

CASE I.—Mr. O., aged 51, was admitted under Dr. Campbell complaining of dyspnœa, œdema of the ankles and numerous petechiæ, especially on the lower limbs. For three weeks previous to admission he had noticed increasing dyspnœa, and one week before admission œdema of the ankles. He had been having his teeth extracted recently, and the last tooth was extracted ten days before admission. He was certain that the petechiæ were not traumatic in origin and had not been present for a long time.

Two days before admission while in bed he experienced an attack of sharp pain, at first situated over the lower chest, but later becoming retrosternal. It was of a constricting character, made breathing difficult, and lasted about an hour. During this time he thought that he was going to die.

On admission he was found to be a well-built man with dyspnœa and œdema of legs and feet. There were multiple petechiæ on legs and thighs. His heart was not enlarged, but the cardiac sounds were much muffled and of tic-tac rhythm. His pulse was 100, and blood pressure 143 mm. systolic and 76 mm. diastolic. The lungs were emphysematous and a few scattered rhonci and basal crepitations were heard. Tonsils had been removed many years previously, but there was a large petechial hæmorrhage on the uvula. A few septic stumps were seen in the mouth and the gum of the last tooth removed was badly lacerated. No abnormality was found in the nervous system or abdomen, and the urine showed a trace of albumen. He was definitely anæmic (hæmoglobin 65 per cent.), there was a slight leucocytosis (11,400) and the colour index was normal (.98). The Wassermann test and blood culture on two occasions were negative.

Within a week the petechiæ and œdema had largely disappeared and the heart sounds had become much clearer. The remaining teeth were removed separately under local anæsthesia, and all gave a culture of s. viridans; from these an autogenous vaccine was prepared, but found unnecessary. Recovery was complicated by an attack of broncho-pneumonia.

He was re-admitted one year later for myocardial failure. There was no evidence of coronary thrombosis, and he was discharged feeling quite fit after one month's treatment. He has remained in good health ever since.

This case illustrates very well how carefully the extraction of chronically infected teeth should be performed. The occurrence of anginal symptoms at rest associated with cardiac failure and a fall in blood pressure suggested coronary thrombosis. This was proved by subsequent electrocardiagraphical changes. With the removal of the first few teeth he began to develop signs of a toxic myocarditis, evidenced by his lassitude and rapidly increasing dyspnœa on exertion. The myocarditis was exacerbated by the increased absorption of toxins when more teeth were removed. Finally, his toxæmia become so severe that he developed a generalised purpura and a coronary thrombosis. The s. viridans was cultivated from every tooth extracted.

While blood culture was negative the association of cardiac failure, coronary thrombosis and purpura cannot have been due to any other cause than the focus of sepsis in the mouth.

Although it must be admitted that cases of coronary thrombosis following dental disease are very rare, minor degrees of myocarditis, evidenced by fatigue and dyspnœa on slight exertion, and a general feeling of "unfitness," must be quite frequent.

My next case is interesting in that the patient was seen and investigated before the ocular lesion had appeared.

CASE 2.—Mr. D. B., when seen on March 31st, 1931, complained of "heaviness" of both eyes and rapid fatigue after reading. This had lasted for six weeks. He was very worried about his condition as he had suffered from iritis in the right eye when in the army 14 years previously, and after three weeks local treatment this had cleared up completely. For two years previously he had been treated by his own doctor for vague transitory rheumatic pains in the shoulders and upper limbs. These attacks would last for periods of two or three days, with remissions of about four weeks. They were relieved by Turkish baths, light massage and small doses of salicylates.

On examination, no abnormality was found in the ocular, cardio-vascular or nervous systems. The Wassermann test was negative. There was no evidence of past iritis in the right eye. Examination of the mouth, however, showed a gold crown on the upper right first molar tooth. This had been in place for the previous six years. There was a marginal gingivitis of the lower central incisors and a small cavity in the lower right third molar.

Mr. Shaw considered that the eye condition was not a primary manifestation and advised radiological examination of the teeth and dental treatment.

The patient returned ten weeks later complaining of pain, lachrymation and photophobia in the left eye. This showed circum-corneal injection, slight haziness of the iris, a very sluggish reaction to light and definite tenderness on pressure. Vision in the left eye was diminished (6/12). At the first examination it was normal. The right eye was normal. He still complained of pains in shoulders and arms. Inquiry into the nature of the dental treatment showed that the lower right third molar had been filled, but that the marginal gingivitis still persisted in the lower central incisors. No radiological examination had been performed. Subsequent radiological examination showed rarefaction at the apices of the lower central incisors and a peri-apical abscess below the crowned molar tooth. The iritis rapidly cleared up after removal of the affected teeth. One week after extraction vision in the left eye returned to 6/6. The rheumatic pains have never recurred and he has never been troubled with his eyes since.

One pictures this as a case in which the formation of a peri-apical abscess followed the crowning of a tooth. Then toxic absorption occurred from the abscess—at first very slight, but gradually increasing until a definite fibro-myositis developed. Ocular exhaustion in association with toxic absorption finally precipitated an attack of iritis. The importance of radiological examination is well demonstrated in this case.

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

A Vacation Tour in the North-Eastern United States—I.

By E. T. C.

FROM Baltimore the distance to Cleveland by automobile seemed considerable and, even with 25 horse-power under the bonnet and good roads all the way, likely to provide a tiring journey. It was, however, our first venture into the real American continent after a long winter of steam heat in a cosmopolitan seaboard city, and in the bright sunshine of early spring we soon began to lose our fear of tedious driving. The long climb of over 3,000 feet to the summit of the Blue Ridge turned out to be easy enough, and the solitary hotel that later on in the year forms such a haven for sufferers from the ragweed pollen cloud of lower altitudes seemed still deserted. A rapid descent then brought us down to the smoothly rolling foot-hills of the country round Gettysburg. On this natural battlefield were fought out the closing stages of the American Civil War, and here and there by the roadside were to be found little cannon with their piles of shot, while every old house was doing a great trade on the memory of some crinolined heroine who bravely concealed a fugitive Confederate commander from the overwhelming triumph of the Union troops.

By the evening we began to see an occasional oil-well with its attendant derrick, unsightly evidence of the rich shale later replaced by the surface outcrop of soft coal round Pittsburgh. Stopping for supper and bed at a small mining town clustered about a single magnificent cinema, we were able on our after-dinner stroll to find a book-shop boasting not only "Culbertson on Contract," but "Brave New World" as well.

Making, in the morning, plans to avoid the bigger towns of a "black country," still hopelessly stagnant in the grip of an unparalleled industrial depression, we ran on to red roads cleverly paved with a brick made from the blast-furnace slag of more prosperous times. By afternoon we had crossed the broad Ohio River into the flatter country of the Great Lakes, where a poor soil sprouted only petrol stations, and we started to think of goitre. Finally, after many suburban miles, we reached the faultless university quarter on the outskirts of Cleveland itself, and found our comfortable but very empty hotel. The next morning a telephone call to the Lakeside Hospital elicited a response in a very English voice with the information that medical rounds began at 10, while Miss X, for several years secretary to Mr. H., of Wimpole Street, London, Eng., would be more than glad to see anyone from Guy's.

We were led to expect a great deal of the Lakeside, and were not disappointed. The buildings included some of the earlier work of one of the best American hospital architects, now well known as the designer of the splendid new Cornell Hospital and Medical School in New York. Italian Renaissance influence is very strong in all exteriors by this architect, and a curious buff surface effect is obtained by the skilful blending of 18 shades of glazed brick. A buff colour also dominated the interior decoration and there is complete absence of the traditional hospital green. An amazingly rapid elevator spun us to the upper floors of a moderate-sized medical building, H-shaped in horizontal section. Wards with single, double and quadruple cubicles, also main rooms and sun porch, occupied the long limbs of the H, while along the cross member were situated the chemical, bacteriological, cardiographic, and radiological services for each floor. This arrangement with slight modifications, is now almost standardised in the United States, and provides a quite remarkable convenience in ward operation.

With Miss X on the look-out for us we were soon attached to the physician's morning round and involved in an intense discussion of Addisonian and other anæmias. Why, it was asked, did herbivorous animals not suffer from a high colour index anæmia when their gastric juices had been shown to be active in the Castle manner? A fair question for a graduate of the agricultural school of physiology, and one he intends to refer to its stock-raising principal in the very near future. Later, lunch brought the inevitable discussion of the "depression," in which the Ohio State, with its dependence on the automobile industry, is particularly concerned. A note of optimism prevailed in view of the re-opening of the Ford plant a few weeks previously, an event already affecting Cleveland business interests in a favourable manner. For the afternoon there were the research departments, where a persistence in the adult human heart of embryonic communications between coronary circulation and Thebesian vessels was being carefully followed up by methods of injection and wax model reconstruction. The bacteriologists were interested in whooping-cough, which apparently presents certain peculiar epidemic features in this part of the world as well as a higher incidence in adults.

No visit to any medical institution in America can be considered complete without attendance at

one of the weekly clinical pathological conferences where laboratory and ward work alike are chastened by the post-mortem findings in difficult cases. We considered, however, the demonstration of the fresh specimen under the epidiascope disappointing in comparison with the more usual personal inspection of the fixed material. The histological investigation of the cases was of the high standard invariably met with in this country, where autopsies are relatively infrequent and questions of expense do not, as yet, arise.

There were many things of general medical interest in Cleveland that we could hardly approach in the time at our disposal. A wealth of clinical material from the surrounding goitre area has led to the local development of a world-renowned school of thyroid surgery. There was a cult-like atmosphere about the dimly-lit rubber-floored rooms in which this work was carried out, and a quite noticeable absence of the cruder features of the surgical craft, even in the unspecialised departments, special attention being paid everywhere to artificial lighting and noise elimination in view of the exclusive use of avertin and local anæsthesia. Here we encountered, however, the latest instance of successful surgeon become medical evangelist with a doctrine of adrenal denervation as a panacea for all the psychological and endocrine evils that beset mankind. We were invited to turn, in this instance apparently, from the comparatively harmless crimes of the colon to the much more serious sins of the suprarenal, but again found it difficult to sift even the usual grain of practical truth from a strangely familiar mass of theory.

Leaving Cleveland, our road stretched some hundred miles or so along the level shore of that "mighty fine body o' water," Lake Erie, yet its breeze, though fresh and cool, so sadly lacked the salt tang of the ocean that we felt no inclination to shorten our trip to Toronto by a brief but expensive voyage to the nearest Canadian port.

Reviews

A Handbook of Midwifery. By COMYNS BERKELEY, M.A., F.R.C.S., F.R.C.P. Eighth Edition. Published by Messrs. Cassell & Co., Ltd. *Price* 8*s. net.*

THIS well-known handbook, now in its 50th thousand, has been thoroughly revised and to a large extent re-written, while much new material has been added to bring it completely up to date. In its revision, advantage has been taken of the numerous helpful suggestions which have been made by many Approved Teachers of the C.M.B., including the matrons of many maternity hospitals and maternity departments of general hospitals.

A new chapter on the principal indications for the various obstetric operations has been added, and the chapters on breech delivery and asphyxia neonatorum have been recast. In the matter of illustrations also the new edition has been improved, some 35 line drawings having been replaced by drawings in wash.

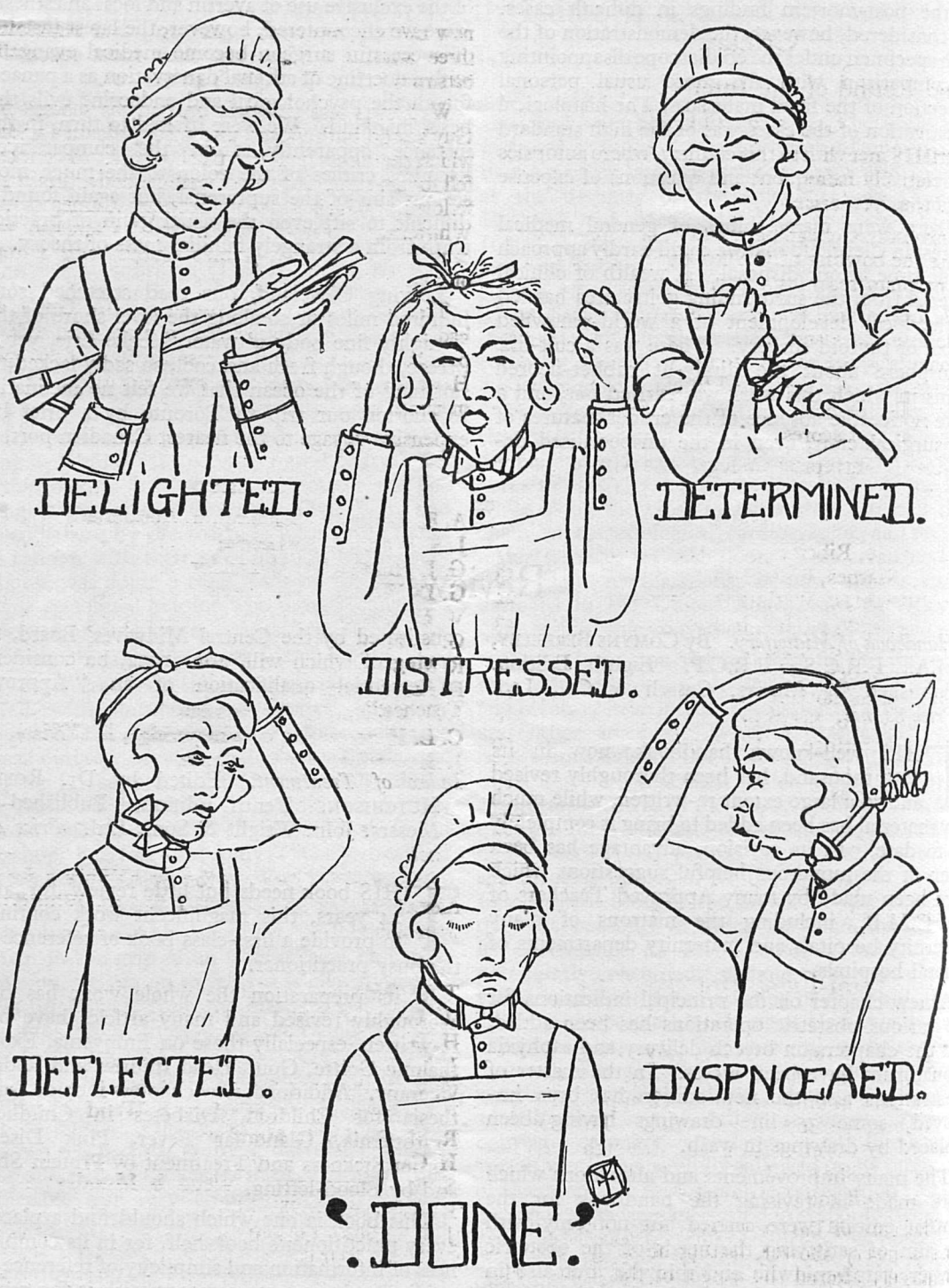
The many improvements and alterations which were made in revising the handbook for the present edition were carried out not only with the aim of satisfying the needs of the obstetric dresser, pupil-midwife and midwife, but also in the hope that it might prove of assistance to those preparing for the Diploma Examination recently constituted by the Central Midwives' Board, the passing of which will, after 1932, be considered an essential qualification of an "Approved Teacher."

Index of Treatment. Edited by Dr. ROBERT HUTCHISON. Tenth Edition. Published by Messrs. John Wright & Sons, Ltd. *Price* 42*s. net.*

THIS book needs but little review, for, after 24 years, this magnificent work continues to provide a first-class book of reference for the busy practitioner.

In its preparation the whole work has been thoroughly revised and many articles have been re-written, especially those on Empyema, Exophthalmic Goitre, Gout, Head Injuries and Radium Therapy. Additional new chapters include Anæsthesia for Children, Diabetes in Childhood, Erythræmia, Glandular Fever, Pink Disease, Serum Sickness and Treatment by Protein Shock and by Blood-letting.

This book is one which should find a place in every practitioner's bookshelf, for in its completeness of information and simplicity of reference few medical volumes can compare with it for general practical usefulness.


DELIGHTED.
DISTRESSED.
DETERMINED.
DEFLECTED.
'DONE.'
DYSPNŒAED.

Sport

Cricket

2nd Round of the Inter-Hospital Cup
Guy's v. U.C.H.

THIS match was played at Honor Oak Park on Thursday, June 2nd, and resulted in a win for Guy's by 9 wickets.

University College batted first, and failed badly before the bowling of O'Shea and Alexander, only one batsman reaching double figures.

W. Lewis and Starnes opened for Guy's and made a useful stand for the first wicket, and our opponents' score was passed with the loss of only one wicket. We continued to bat, and eventually made 186, Doherty 43 and Outfin 37 not out being the best scores.

Scores—University College, 50; Guy's, 54 for 2 wickets.

Guy's

W. Lewis, b. Ribeiro	27
J. A. G. Starnes, b. Ribeiro	13
G. C. Wright, c. Watling, b. Davies	22
G. V. Doherty, c. Hall, b. Ribeiro	43
H. D. Devan, b. Ribeiro	10
P. C. Alexander, b. Burns	6
R. M. Outfin, not out	37
H. Cameron, b. Stratford	0
S. M. Whitteridge, b. Ribeiro	10
R. V. Payne, l.b.w. Watling	30
Extras	15
Total	186

Bowling—O'Shea 3 for 17, W. Lewis 1 for 8, Alexander 3 for 13, Payne 2 for 6.

Semi-Final Hospital Cup
Guy's. v. St. Bartholomew's

PLAYED on Thursday, July 7th, at Winchmore Hill. Cameron won the toss, and put Bart.'s in on a wicket which appeared rather wet in comparison with the outfield. The Hospital bowling was definitely good, although our fast bowlers, O'Shea and W. Lewis, could get very little pace off the damp wicket.

When six of Bart.'s wickets were down for 101 runs a heavy shower, lasting about 30 minutes, completely altered the aspect of the game. Play was not possible for another three hours, and when Bart.'s did resume batting on a wicket which was now nothing less than a glue-pot, their remaining three wickets fell quickly, their most successful batsman being Wade, with 40 not out.

W. Lewis and Ridsdale opened the innings for Guy's, and both looked uncomfortable on a wicket which definitely favoured the bowlers. Six wickets fell for 49 runs, and then Outfin added a bright 18, following which a stand between Cameron and Whitteridge looked hopeful until Cameron was caught, and Guy's innings closed with a total of 112.

This was a most unfortunate day for Guy's, as, had it not rained, we ought to have been able to pass Bart.'s score after dismissing them so cheaply. However, we enjoyed a most sporting, not to mention exciting, game.

Scores—Bart.'s, 132; Guy's, 112.

Bart.'s

A. R. Boney, c. Cameron, b. Alexander	13
J. A. Nunn, b. Alexander	19
G. J. Hindley, b. Alexander	14
G. D. Wedd, b. W. Lewis	11
W. H. Gabb, b. Payne	19
G. V. H. Wade, not out	40
R. Munday, b. Whitteridge	3
B. Kait Smith, b. W. Lewis	4
J. D. Wilson, b. Whitteridge	2
C. L. Hayshunker, c. Whitteridge, b. O'Shea	1
J. B. Bamford, l.b.w. O'Shea	0
Extras	6
Total	132

Bowling—W. Lewis 3 for 49, O'Shea 2 for 30, Alexander 2 for 15, Payne 1 for 10, Whitteridge 2 for 22.

Guy's

T. D. Ridsdale, c. Nunn, b. Munday	12
W. Lewis, c. Gabb, b. Hayshunker	10
H. D. Devan, b. Hayshunker	1
J. A. G. Starnes, c. Gabb, b. Munday	1
G. V. Doherty, c. Wedd, b. Munday	11
P. C. Alexander, c. Hindley, b. Wedd	6
R. M. Outfin, b. Munday	18
H. Cameron, c. Wade, b. Hayshunker	18
S. M. Whitteridge, c. Wedd, b. Munday	23
R. V. Payne, b. Wedd	5
J. P. O'Shea, not out	4
Extras	3
Total	112

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.

THIRD EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.

Easter, 1932.

PART I.

Surgery, Midwifery and Gynæcology.

A. Bowen Davies
C. A. Clarke
W. G. Gill
G. A. Miller
R. V. Payne
S. M. Silverstone
G. V. Steward

PART II.

Physic, Pathology and Pharmacology.

B. Holden
R. A. Ratcliff
S. M. Silverstone
G. V. Steward
C. E. R. Wood

OXFORD UNIVERSITY.

B.M., B.Ch.

June, 1932.

Medicine, Surgery and Obstetrics.

P. M. F. Bishop
R. H. Bolton
H. G. N. Cooper
W. H. Greany

Pathology.

P. M. F. Bishop
A. J. Grace

Forensic Medicine and Hygiene.

H. J. B. Atkins
C. H. Fagge
A. J. Grace
R. F. Lomax

Materia Medica.

J. H. Bartlett
P. E. F. Routley
C. A. Boucher

CONJOINT BOARD.

July, 1932.

PRE-MEDICAL EXAMINATION.

PART I.

Chemistry and Physics.

W. Wylde
K. R. D. Porter
C. G. Wright
D. F. Denniss
N. R. McEvoy
A. K. Mayne
†F. J. C. Matthews
D. D. Gross
G. P. L. Taylor
D. B. Sedgwick
E. L. Sutton
*G. J. Marchant
†R. G. Siggers
†J. C. A. Colenbrander

* Chemistry only. † Physics only.

PART II.

Elementary Biology.

W. Wylde
R. G. Archer
D. F. Denniss
G. M. A. Brown
J. S. W. Dryland
C. A. W. Martin
G. C. J. Pearce
K. R. D. Porter
G. C. Wright
N. R. McEvoy
H. N. Crabb
S. Farro
W. J. R. Morgan
G J. F. Rees

FIRST EXAMINATION.

SECTION I.

Anatomy and Physiology.

J. W. Doupe
G. J. Parfitt
†B. J. Doran
*G. M. Curtois
*S. E. Osborne
*T. Morgan
G. M. Johnson
H. Kanter
G. Humby
*B. D Sachdeva
*L. Merrill
†A. A. Wailer

* Physiology only. † Anatomy only.

SECTION II.

Pharmacology and Materia Medica.

B. D. Sachdeva
W. B. Clegg
G. W. D. Reeves
A. R. O. Denton
G. O. W. Doherty
G. V. Clark
I. Finer
J. W. Mansie
H. D. Robinson
T. Weiner

Papers by Guy's Men

J. A. Ryle. Meningism and meningitis. *Clin. J.*, 1932, lxi, 313.

F. A. Knott, C. Gill Carey and A. F. Hurst. Seasonal hay fever. *Pract.*, 1932, cxxix, 45.

J. Smith and M. Maizels. Plasma phosphatase in rickets and scurvy. *Arch. Dis. Childh.*, 1932, vii, 149.

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D. Allan, M.R.C.S., L.R.C.P., 14, West Lawn, Sunderland. *Sunderland* 6188.

Births

HOSSELL.—On June 14th, 1932, to Norah, wife of Frank L. Hossell, L.D.S., R.C.S. (Eng.), of Derwent Lodge, Uckfield—a son.

JONES.—On July 11th, 1932, to Margaret, wife of Dr. E. Bowen Jones, of Northleach, Cheltenham, Glos.—a son.

WELLS.—On July 8th, 1932, to Agnes Ida (neé Pym), wife of V. W. L. Wells, M.R.C.S., Adderbury House, 172, High Road, Lee, S.E.13—the gift of a son (Barry).

Marriage

RICHMOND—THOMPSON.—On 18th June, 1932, J. H. Richmond, M.A., M.B., B.Chir. (Camb.), M.R.C.S., L.R.C.P. (Lond.), elder son of Dr. and Mrs. B. A. Richmond, of Ealing, to Gwendoline Mabel, daughter of Mr. and the late Mrs. Neville Thompson, of Osbaston, Leicestershire.

EDS. { G. A. M. L. / E. S.

GUY'S HOSPITAL GAZETTE

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PASSIM

WITH financial conditions as they were in 1931, and for that matter still are to-day, it would have come as no surprise if the income of the voluntary hospitals in London had shown a considerable decrease in the annual figure. It is, therefore, correspondingly gratifying to learn that during last year £1,763,000 was collected, this amount being slightly less than that raised in 1930, but more than the average income obtained in the five years included in the statistical review issued by the King Edward's Hospital Fund for London.

An interesting point that is brought to light in this report is the fact that, although subscriptions and donations show a slight falling off, yet this is more than counter-balanced by an increase in the amount derived from legacies. In these days of heavy death duties this is a remarkable fact, and seems to indicate that a really deserving cause will receive support in spite of crippling taxation.

Another welcome statement in the review is that during 1931 there were 85 hospitals with a surplus against 72 in 1930, and only 57 showing deficits as compared with 70 in similar plight during the preceding year.

Attention, however, must be drawn to the fact that included in the combined incomes of hospitals showing a surplus for the year are amounts of an exceptional nature received by institutions fortunately selected for such gifts, which tends to reflect unsatisfactorily on the position of other less fortunate hospitals showing a deficit for the same period. We regret Guy's came under the latter category in 1931 as in preceding years, but we sincerely trust our name may soon be transferred to the former list of more favoured hospitals. The present burden of debt at Guy's is a great handicap to the successful maintenance of our institution.

Whereas it is dangerous to forecast the future of voluntary hospitals in this country, yet the moral to be drawn from the figures published in this review is encouraging. In spite of much that has been said to the contrary, the public still recognises the valuable part played by these establishments.

As long as the voluntary hospitals maintain the prestige they have always enjoyed in the eyes of the populace their future is assured, and the prospect of none but State-supported institutions will still remain remote.

The report, while expressing great appreciation of the efforts of the voluntary contributors, lays stress on the importance of the work carried out by the committees and staffs of the hospitals, composed, as they are, of members who work in an entirely voluntary capacity.

If the satisfactory balance sheet of 1931 is to be repeated there must be no falling off in the efficiency and energy that has always characterised these hospitals. With a fall in the amount of work effected there will surely follow a proportionate decrease in income derived.

MANY are the innovations and improvements which we could suggest to lighten the lot of those who life in the College; in fact, without this continual source of discontent life would indeed be dull and the Editors of the *Gazette* would be hard put to it to find material to fill the yawning void which must eventually be "Passim" and for which they so often search in vain.

The latest improvement which has come to our notice, and which, though small enough, we feel should not pass without remark, is the installation of a new shower in the only shower-bath which the College boasts. For many months now the unwary bather, still a little dim about the eyes from the mists of morning sleep, would be welcomed to his ablutions by a jet of water which was so arranged that it struck him full in the face.

Whether this was a joke contrived by someone with a perverted sense of humour or whether it was that the shower was past its prime we leave to the imagination of the reader, but certain it is that it was definitely old, and, although patched

not once but many times, it has at last been replaced by one of the latest pattern.

Such is indeed a cause for gratification, but this is not all. On returning from Bank Holiday, those of us who were fortunate enough to escape for a few hours were delighted to find on our return that the College dining-room had undergone its annual cleaning. We were greeted not only with shining paint, but with new strips of carpet which it was indeed a pleasure to walk on, and even the trophies of the chase which decorate the walls seemed to have taken on a new lease of life.

We can only hope that this is but the thin end of the wedge, and that the Commission which, we understand, is pondering on the suitability of the College for human habitation has at last ceased to ponder and is already at work.

▭

IT is with sympathy and approbation that we read the recent article in one of the leading daily newspapers of the complaints of a certain doctor who resides near one of the great arterial roads leading out of London.

Apparently doctors who live in such situations are continually being called to attend accidents which so frequently occur on these roads, and from which not only do they derive no material benefit but, on the contrary, are subjected to considerable "mental trauma" by their ungracious treatment.

The suggestion that insurance companies should set aside a definite sum from the premiums paid for third-party risks for the reimbursement of doctors under such circumstances is one which we feel should receive the fullest consideration, for it is beyond doubt that much skilled and willing service goes unrecognised and unrewarded.

▭

ALL our readers will join with us in congratulating Dr. Ryle on his appointment as Physician to His Majesty's Household. This much-deserved honour that has been paid to Dr. Ryle will find very great favour with all Guy's men.

▭

THE following appointments have been made :—

House Physicians—

To Dr. Poulton—G. W. Hall-Smith.
To Dr. Ryle—C. E. R. Wood.

House Surgeons—

To Mr. Fagge—A. M. Cantor.
To Mr. Turner—J. Howell.

Ophthalmic House Surgeon—

R. H. Bolton.

Obstetric Resident—

To Mr. McNair and Mr. Cook—D. Erskine.

Out-Patient Officers—

E. H. de B. Crowther-Smith. W. H. Owles.
Windsor H. Lewis. W. P. Stamm.

Assistant House Surgeons—

To Mr. Davies-Colley—K. J. Gilchrist.
To Mr. Bromley—A. J. Grace.
To Mr. Slesinger—C. G. Baker.
To Mr. Ogilvie—R. G. Reid.
To Mr. Doherty—S. M. Silverstone.

Throat and Ear House Surgeon—

To Mr. Layton—W. H. Bradbeer.

Genito-Urinary and Orthopædic House Surgeon—

J. A. W. Miller.

Post-Operative Pulmonary Complications

A Clinical Lecture delivered at Guy's Hospital by W. H. Ogilvie, Esq., M.Ch.

GENTLEMEN,—It has been stated on several occasions within the last few years that the territory of surgery is now fully explored. This picturesque overstatement contains the germ of truth that lies in every rhetorical flourish. Only the more inaccessible corners remain to-day undeveloped, and they are reached laboriously, so that the chief task of our time, as far as most of us are concerned, is not to discover new methods, but to make the ones we have still more safe and satisfactory, and to lessen still further the risk of operation to our patients.

Anyone who investigates the causes of death after operation, and, still more, the causes of disability and prolonged convalescence in the immediate post-operative period, cannot fail to be struck by the large proportion of deaths, of delayed recoveries, and of results that are ultimately not entirely satisfactory that must be attributed to chest troubles. It has been estimated that one patient in every 50 submitted to operation develops some sort of pulmonary complication, and one out of every 185 dies of such complication. This incidence of about 2 per cent. is distributed as follows : After operation on the head, trunk or limbs it is 1 per cent. ; after abdominal operations in general it is 4 per cent., and after upper abdominal operations, 8 per cent. That most fatal of all lung complications, obstructive embolism of the pulmonary artery, shows an even more striking relationship with abdominal operations. Patey records that in the year 1926 there were 50 cases of fatal pulmonary embolism in the large London hospitals ; 43 of these followed abdominal operations. In one London teaching hospital there were, during a five-year period, 23 deaths from

this cause, of which 20 followed abdominal operations; yet in the same years the extra-abdominal operations outnumbered those on the abdomen by two to one. Thus at the outset, examining the incidence alone of lung complications, we have considerable evidence that interference with the functions of the abdomen plays some part in their causation.

We have to consider three mechanisms whereby the lungs may be affected after operation :—

1. The mechanism of aspiration.
2. The mechanism of pulmonary collapse.
3. The mechanism of vascular embolism.

All of these are known to play some part in the production of pulmonary complications, and variations in the extent to which each mechanism is responsible in any particular case account largely for the diverse and often puzzling nature of the symptoms and signs which we encounter.

I.—THE MECHANISM OF ASPIRATION

At the time when I was a house surgeon, all chest troubles occurring after operation were loosely termed "ether pneumonia." Ether was used, almost without exception, for anæsthesia, and since the disturbances in the lung became manifest within a few days afterwards, it was assumed, without any very careful scrutiny, that they were caused by the direct action of an irritant vapour upon the respiratory mucous membranes. Anæsthetists were quick to resent this slur upon their favourite drug. It was shown that ether vapour, in the concentrations used for anæsthesia, gives rise at most to a transient hyperæmia of the respiratory epithelium followed by an excessive secretion of mucus lasting for a few hours, but that by itself cannot produce pneumonia. Inflammatory changes in the lungs, so far as they are brought about by the mechanism of aspiration, are usually due to the inhalation of solid particles, blood, mucus, vomited material or debris containing bacteria from the mouth or pharynx.

The factors which influence the aspiration of particles into the lungs are the type of anæsthesia, the depth of anæsthesia and the position of the patient. When the patient is struggling, cyanosed and breathing stertorously, there is an excessive secretion of mucus and saliva, which is very apt to be drawn into the lungs by the convulsive inspiratory movements; if in addition he vomits or swallows the danger is greatly increased. The depth of anæsthesia and the position of the patient become especially important where an operation, such as tonsillectomy, is performed in the upper respiratory tract. It has been shown, by the bronchoscopic examination of patients at the conclusion of the operation, that during light anæsthesia where the cough reflex is not abolished, it is uncommon for blood or mucus to enter the trachea, but where deep anæsthesia is used, this occurs in considerably more than half the cases. In operations of the same type, the adoption of the Trendelenburg position, or placing the shoulders on a sand-bag and allowing the head to hang down, greatly diminishes the number of cases in which blood can be shown to have entered the trachea. A factor of importance in operations of every type is the presence, at the time of administration of the anæsthetic, of infection in the upper respiratory tract. Pyorrhœa, tonsillar infection and sinus disease all increase the risk of aspiration of septic material during anæsthesia. Of even more importance is an infective or catarrhal condition of the bronchi themselves. In patients who have a cold, an attack of bronchitis, or who have been in contact with cases of influenza, any irritation, such as the usually innocuous one produced by ether vapour, may give rise to a broncho-pneumonia. No operation that can safely be postponed should be performed on patients with coughs, colds or unexplained temperatures, and if an operation is necessary, local anæsthesia should be used whenever possible.

Pulmonary complications caused by the mechanism of aspiration usually develop within a few hours of the operation; they have been given various names—early pneumonia, aspiration pneumonia, ether pneumonia, or post-operative broncho-pneumonia. The temperature is raised, from 101° to 105°, the breathing becomes rapid and shallow and the pulse weak. There is remarkably little pain. At first the cough is dry, with no sputum, and there are no physical signs in the chest; later on abundant purulent expectoration appears, and scattered rales and patches of consolidation are found over both lungs, especially at the bases. The organism responsible for these "early pneumonias" are usually the septic cocci, and the mortality is high.

Another type, also considered to be due to the aspiration of infected material, is the so-called "late pneumonia." This appears suddenly between the eighth and twelfth day, but the post-operative course has rarely been entirely afebrile. The temperature is raised, usually from 102° to 104°, and signs of localised consolidation appear, most commonly at the right base. Late pneumonias are usually due to some type of pneumococcus, and the prognosis is good.

When fragments of some size, such as pieces of blood-clot or fragments of tonsil, have been drawn into a bronchus, a lung abscess is very likely to develop.

II.—THE MECHANISM OF PULMONARY COLLAPSE

It has only been appreciated within the last few years that pulmonary collapse is an important ætiological factor in post-operative lung complications. At the present time some surgeons, especially in America, tend to attribute the great majority to this cause. The term "atelectasis," often used in this connection, is to some extent misleading, since it means "failure of expansion," and is only strictly applicable to the condition of airless lung found in the new-born.

Lung tissue may be made to collapse by pressure from outside, such as that due to air or fluid in the pleural cavity. This is sometimes called "passive collapse." Active collapse occurs when some part of the bronchial tube is obstructed; the air contained in the portion of lung which is thus cut off from respiratory exchange is absorbed, and that part of the lung becomes solid and shrunken. This second mechanism is responsible for the pulmonary collapse that occurs after operation, and two factors are concerned—the production of a thick, viscid, bronchial secretion and some inhibitation of the movements of respiration, and especially of coughing. It has been shown by experiments on animals that either factor alone is insufficient for the production of collapse, but that both must be present. Both factors are frequently found after an operation, especially after an abdominal operation performed under inhalation anæsthesia. Mucus then accumulates in some part of the bronchial tree till it produces a complete block; the air behind the block is absorbed and the affected part of the lung becomes solid. The plugs of mucus have been actually seen through the bronchoscope, and removed by suction, with immediate relief of symptoms.

The secretion of mucus from the bronchi is increased by any form of inhalation anæsthesia, especially by the inhalation of ether. If there are impurities in the anæsthetic, or if the vapour is too dry, cold, or in excessive concentration, the irritant effect is more marked; but even the most skilful administration with modern apparatus for warming and moistening the air will lead to some increase in the secretions lasting for several hours.

The movements of respiration are hampered by any operation, but are more obviously impeded by an abdominal operation. This interference has been investigated in several ways. One of the simplest methods of recording the efficiency of the respiratory movements is by estimation of the vital capacity, that is, the total amount of air that can be expelled by the fullest possible expiration following the fullest possible inspiration. It is found that the vital capacity is reduced merely by the adoption of the supine position in bed. After operations on the limbs or trunk, even extensive dissections involving the thoracic wall such as the radical operation for cancer of the breast, it is not appreciably diminished if the recumbent position is not adopted. But after any abdominal operation it is reduced from 30 to 90 per cent. The chief factor curtailing the respiratory movements is the reflex inhibition of diaphragmatic breathing. The movement of inspiration stretches the incision passively, and that of expiration causes the injured muscles to contract; both movements are therefore cut short by a protective reflex. If the incision is a high one, approaching the thoracic margin, costal inspiration is also interfered with. Further adverse factors that arise after many abdominal operations are post-operative distension, which hampers the descent of the diaphragm, and the administration of morphine, which dulls the respiratory centre. In addition to measurements of the vital capacity, radiographic tracings of the movements of the diaphragm and records of the changes in intro-abdominal pressure have been used by Patey to show the interference with the mechanism of respiration that follows any abdominal operation.

The collapse which follows operation may involve varying parts and amounts of lung tissue, but the posterior part of the right base is most commonly affected. The terms "massive collapse," "lobar collapse," and "lobular collapse" are used to describe the change as it affects large portions of lung, one lobe, or scattered areas in several lobes.

The smaller degrees of collapse give rise to very indefinite signs and symptoms, and are difficult to recognise clinically; many early and late pneumonias that have been ascribed to aspiration have probably been due rather to secondary changes in small areas of collapsed lung. Massive and lobar collapse, on the other hand, present a picture that is usually unmistakable. The onset is sudden, from one to four days after operation, with pain in the chest, dyspnœa, a rapid pulse and cyanosis. The temperature is at first normal, but soon rises to 102° or 103°. The patient lies on the affected side and inclines his trunk towards it; this side of the chest looks smaller and obviously moves less than the normal side. The physical signs have been described as those of "dead lung," that is the percussion note is absolutely dull, tactile vocal fremitus is absent, and, on auscultation, no breath sounds, voice sounds or rales can be heard. Later, the signs indicating solid lung appear—an increase in vocal resonance and breath sounds. The heart, trachea and mediastinum are displaced towards the affected side, signs that

readily differentiate the condition from one of pulmonary consolidation or pleural effusion. The diagnosis is usually obvious on the history and physical signs alone, but a radiogram of the chest, which will show the collapsed lung as a dark area and demonstrate the displacement of the mediastinum towards this shadow, will clear up any doubt on the point.

Post-operative pulmonary collapse is not usually a serious complication, and disappears spontaneously in a few days. Recovery may be hastened by encouraging deep breathing and by giving inhalations of carbon dioxide to increase the respiratory movements.

III.—THE MECHANISM OF VASCULAR EMBOLISM

Embolism of the pulmonary blood vessels following operation is due, in nearly every case, to the liberation of thrombi formed in some part of the venous system. When the emboli are small they are arrested in some of the smaller branches of the pulmonary artery, and cut off the blood supply from part of the lung, a process that is called pulmonary infarction. A large embolus blocks the pulmonary artery or one of its main branches, and the condition is then called pulmonary embolism. Pulmonary infarction and pulmonary embolism are essentially the same, but infarction declares its presence by the changes in the lungs to which it gives rise, and is appropriately discussed under the chest complications of operation; whereas pulmonary embolism is encountered as a sudden catastrophic arrest of the circulatory system, and demands separate consideration.

An examination into the causes of thrombo-embolic disease, as it is called by Swedish surgeons, does not yield very much information. Analyses of large series have been carried out by several writers, and only three things appear to have any ætiological relationship. First, the great majority of cases follow an abdominal operation. Second, age plays a part—very few emboli occur in patients under 30. Third, individuals who later develop emboli have rarely been entirely normal after the operation, either there have been manifest thrombi in some of the peripheral veins or, more commonly, the temperature has been slightly raised. It does not appear to be of importance whether the operation has been rough or gentle, septic or clean, or whether it has affected the systemic or portal circulation. These observations suggest a three-fold origin for the clot: a sluggish circulation in the veins due to inhibition of abdominal respiration, the factor of endothelial damage due to age or sub-infection, and the liberation of thrombo-kinase into the circulation by injury. Of these causes the only one we can combat effectively is the sluggish circulation in the veins.

Pulmonary infarction commonly occurs between the fourth day and the end of the second week. The patient has usually had a small, unexplained temperature since the operation, and perhaps thrombi have been noticed in the veins of the leg. The first symptom is a sharp localised pain in the chest at the site of the infarction. The temperature and pulse are raised. There is dyspnœa, a cough, and the sputum is stained with blood. Later a friction rub appears over the infarcted portion of lung, at a point corresponding fairly accurately to that of the initial pain; signs of solid lung appear, dullness to percussion, rales and loud breath sounds on auscultation. If the infarct is a large one, or if several occur simultaneously or in quick succession, the constitutional symptoms may be severe and cyanosis and shock be apparent.

Fat embolism differs from thrombotic embolism in that fat emboli can pass through the pulmonary circulation and reach any part of the body, whereas fragments of clot are entirely arrested in the lungs. It is of less importance because it is rare, and usually fatal.

Fat embolism may follow fracture of the shaft of one of the long bones or operations involving large dissections in subcutaneous planes. The symptoms appear within the first 24 hours, and are in the main referable to embolism of the coronary vessels—pallor, cardiac pain and collapse; of the pulmonary vessels—copious moist rales, dyspnœa and a high temperature; and of the cerebral vessels—delirium, passing into coma. No effective treatment can be suggested.

THE PREVENTION OF POST-OPERATIVE PULMONARY COMPLICATIONS

We can do much to reduce the number of chest troubles in our surgical wards, and to lower the mortality from this cause, if we bear in mind that those complications are to be feared chiefly after abdominal operations, and most of all after operations on the upper abdomen. Prophylaxis, in this connection, is no more than common sense applied to the countering of those three mechanisms by which we know the complications are caused. We may therefore lay down a few appropriate rules under each heading.

Mechanism of aspiration.

1. Before an operation under general anæsthesia any infective foci in the mouth and pharynx, especially dental sepsis, should be cleared up.

2. No avoidable abdominal operation should be performed upon a patient with a cold or an un-

explained temperature, or one who has recently been exposed to infection.

3. The greatest care should be exercised in choosing the anæsthetist and the anæsthetic for an abdominal operation. If there is any reason for anxiety a local anæsthetic should be used. Local anæsthesia eliminates the risk of aspiration pneumonia, and avoids one of the factors leading to pulmonary collapse; it does not prevent complications due to thrombotic embolism.

Mechanism of pulmonary collapse.

The precautions underlined under the previous heading will tend to diminish congestion and inflammatory changes in the lining of the bronchi, one of the factors leading to collapse. The dangers of diminished respiratory movements should also be combated as far as possible.

1. Incisions in the abdominal wall should be planned upon physiological lines, that is, they should interfere as little as possible with the structure, movements and innervation of the abdominal muscles. They should be made gently and closed carefully.

2. Heavy dressings and tight bandages, which interfere with abdominal movements, should be avoided.

3. The position of the patient after operation should be arranged with a view to allowing the fullest possible use of abdominal respiration. At the earliest opportunity, change of position should be encouraged.

4. Post-operative distension should be avoided when possible, and treated energetically when it appears.

5. Morphia should be used sparingly. An injection is usually required on the night of operation, but thereafter analgesics or hypnotics which have a less depressing action in the respiratory centre should be given preference.

Mechanism of thrombotic embolism.

The measures which have been advised to favour abdominal respiration are also of value in preventing venous thrombosis. In addition to these:—

1. The venous circulation should be assisted after operation by leg movements or daily massage when the patient is helpless, breathing exercises, and unrestricted freedom in the bed, which is harmless except in the presence of peritonitis.

2. Dehydration should be avoided before operation, and the fluid reserve of the body should be kept fully charged afterwards.

3. At operation, all procedures should be carried out with the greatest gentleness; with few exceptions, "blunt dissection" is synonymous with bad surgery.

THE USE OF CARBON DIOXIDE IN THE PREVENTION OF LUNG COMPLICATIONS

As long as 20 years ago some of us were using carbon dioxide in anæsthesia and finding it beneficial, without having any very clear idea why it did good. Within the last five years its use has been established upon a scientific basis. Carbon dioxide is administered by inhalation in concentrations varying from 5 to 10 per cent., either with air or in a mixture containing 50 per cent. oxygen. In these percentages it stimulates the respiratory centre, increasing both the depth and the rate of respiratory movements; in greater strengths it has a toxic action. Carbon dioxide is used for two purposes:—

1. At the end of the operation it is administered to diminish the post-operative duration of anæsthesia. Anæsthetic gases and vapours are eliminated from the blood by diffusion into the alveolar air, and an increase in respiratory volume, such as that produced by CO_2 inhalations, hastens the elimination; as the concentration of the gases in the blood falls, the rate of diffusion decreases, and it is found in practice that artificial hyperpnœa carried on up to five minutes is sufficient. The shortening of the unwanted post-operative stage of anæsthesia curtails the period during which respiratory movements are diminished, circulation sluggish, and the reflex mechanisms protecting the upper air passages in abeyance.

2. After operation it is used to increase pulmonary ventilation, particularly with a view to aiding expansion of the bases. Some American surgeons keep a cylinder containing carbon dioxide-oxygen mixture in every ward, and order it to be administered thrice daily for a few minutes at a time to every patient during the first week after operation. In England it is not given to those who are making a satisfactory recovery, but reserved for those who are breathing shallowly or remain a poor colour.

POST-OPERATIVE PULMONARY EMBOLISM

Obstructive pulmonary embolism is one aspect of thrombo-embolic disease, whose causes have already been discussed under the heading of infarction of the lungs. It follows roughly one operation in every thousand. The clot usually arises in the common or external iliac vein and becomes lodged across the bifurcation of the pulmonary artery, or obstructs one of the main branches. This catastrophe is the dread of every operating surgeon. It may spare him for years at a time till he has been lulled into a sense of false security, or it may cut off three or four of

his patients in quick succession. It strikes impartially upon the unjust and the just, the feeble and those in the prime of health and strength, those who are seriously ill and those who have undergone an operation of convenience, the patient of the tyro and of the famous expert.

The diagnosis is usually unmistakable if we bear the following points in mind. The patient is a healthy adult over 30 years of age, with no demonstrable lesion in the heart, lungs or kidneys, who has had an abdominal operation not less than four and usually not more than fourteen days previously. The post-operative course may have been febrile; sometimes there have been thrombi or bouts of pulmonary infarction. The attack comes like a bolt from the blue, either unheralded or preceded by an urgent call for the bed-pan. There is a sudden pain in the chest, an intense craving for air, and consciousness is lost. The pulse disappears, but a faint pulsation is noted in the veins above the clavicles, which become distended. The skin shows a dusky pallor.

It is very difficult to give a prognosis apart from operation. According to Lenorman, just over half the cases eventually recover, but others put this number much lower. It may be said tentatively that one quarter die within a few minutes; another quarter recover partially, and die later either because of the detachment of fresh emboli or of thrombosis in the pulmonary artery; the remaining half gradually improve, and, after a stormy convalescence, eventually survive.

The immediate treatment of a case of pulmonary embolism is directed to relieve shock and assist the circulation. The patient is placed in a sitting position and given a quarter of a grain of morphia. Oxygen is administered by a nasal catheter, and subcutaneous injection of oxygen may be tried in addition. Heat is applied to the limbs and trunk to assist the peripheral circulation; venesection is occasionally performed to relieve the right side of the heart.

When there is no sign of improvement, in spite of these measures, and death appears imminent, the operation of pulmonary embolectomy offers a last chance of saving life. This operation, originally designed by Trendelenburg in 1908 and later improved and simplified by A. W. Meyer, of Berlin, has now been successfully performed upon ten occasions. Of these ten people who have been brought back from the dead are at this moment alive and well, the first was operated on by Kirschner, of Tubingen, by Trendelenburg's original method, five by Meyer, two by Nystrom and two by Crafoord, the last two surgeons working in Sweden.

If Trendelenburg's operation is justifiable, and every surgeon will agree that it is, we must, I think, lay down three rules. First, the diagnosis must be certain. In this connection I would emphasise the distension of the external jugular veins. In heart failure the veins are empty; in pulmonary embolism they are distended, pulsating, and the flow is from the heart. Secondly, we must never operate upon a patient who is not obviously moribund, for many apparently hopeless cases recover, and we might by hasty operation lose a life needlessly. Thirdly, every person who may be called upon to do the operation should make himself familiar with and expert in all its steps, by practice on the cadaver.

This last recommendation is, I think, the most important. The operation should be looked upon not as a stunt, but as a routine; its performance not a matter of rivalry, but of duty to one's hospital and its patients. The operation is not one of any technical difficulty; its steps are more simple than those of the radical cure of a hernia, for the structures concerned are large and unmistakable. And, by the nature of their duties, it is the young men who are doing resident surgical posts in hospitals who will be most frequently called upon to perform it. In the near future I believe that every hospital will have its set of instruments always ready, and that every Registrar, as a condition of his appointment, will be expected to be familiar with the technique of embolectomy. Crafoord holds a similar post in the Sabbatsburg Hospital, at Stockholm. It is with a view of a preliminary rehearsal of the steps of the operation by all our young surgeons that I have made the film which I am now showing you.

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Bright Intervals—I.

THERE comes a moment every day
When dignity is dashed away,
And Nature holds exclusive sway
O'er each recumbent victim ;
When such a force with such a power
Exclaims, " This is my little hour ! "
Although, perchance, we cringe and cower
We cannot contradict him.

One lies all day in constant fear
That Nature's hour is drawing near,
And when, in fact, it does appear
One then prepares for torture.
With timid hand you ring the bell,
The nurse arrives, inquiring " Well ? "
In undertones your tale you tell—
And have the bed-pan brought yer.

Within a kingdom all one's own
One sits upon a shaky throne,
No cushioning save skin and bone,
No choice of abdication ;
A stance impossible to quit,
Like Buddha on the bed you sit,
Compelled to do your little bit
In utter degradation.

Some day I'll earn undying fame
And help the crippled, sick and lame,
By mitigating all the shame
And dreadful acrobatics.
Arrangements on my patent cots
Will cater for all kinds of bots.,
And all the painful pans and pots
We'll banish to the attics.

" SINISTER."

How is the Condition of the Teeth of Special Importance to Medical Practitioners ?

B.M.A. Prize Essay, 1932, by L. Cosin, Esq.

(*Concluded*)

II.—THE CONDITION OF THE TEETH AS INDEX OF GENERAL DISEASE

WE have already seen how the condition of the teeth may be the cause of systemic disease. Let us now examine those diseases in which the condition of the teeth is a local manifestation of them.

This relation is well displayed in congenital syphilis where the characteristics pointed out by Hutchinson are found. The permanent upper central incisors are widely spaced and show that typical peg-shaped appearance with concave biting surface. Very often the first molars are also affected in that the usual well-formed cusps are replaced by many small protuberances so that the whole tooth bears a faint resemblance to a mulberry. The deciduous teeth are always affected, but they only show a generalised hypoplasia, which in itself is not pathognomonic of congenital syphilis. These features can be of great diagnostic value in the later manifestations of this disease where no other stigmata may be apparent.

Broderick has shown how patients dying from pulmonary tuberculosis often have very bad oral conditions. Sir William Willcox has come to the same conclusions with regard to such diseases as scurvy, dysentery and malaria. In the presence of rheumatoid arthritis the condition of the teeth may become worse during the active stages, but show definite improvement during the quiescent period.

Since such a large portion of each tooth is composed of a substance resembling bone it is not surprising that errors of calcium metabolism are reflected in the condition of the teeth.

Although rickets and osteomalacia are metabolic disorders with a similar pathology, the lesions as they affect the teeth differ widely. This is due to the different age incidence of the two diseases. Rickets affects the infant between the ages of six months and two years, at which period the permanent teeth are being calcified. The deficient calcification is reflected in the poor hypoplastic permanent teeth prone to early caries. It is an interesting point that the teeth formed after the arrest of the disease are normal in shape, size and reaction to infection. Because of this one often sees a line dividing the hypoplastic crown from the normal apex and neck in adults who have suffered from rickets. The largest proportion of cases of osteomalacia occurs in pregnant women in the Far East, especially China, where the diet

is never much above famine level. This is due to the increased demand for calcium by the fœtus, so that the teeth suffer from a general decalcification with the skeletal system. Although caries occurs the teeth recover as soon as the error of metabolism is corrected. Minor degrees of calcium deficiency often occur in the later months of pregnancy, when the progress of caries is much accelerated. Rickets is not due so much to a lack of calcium as to an inability to use it. This is caused by the lack of the anti-rachitic Vitamin D in the diet. It is interesting to observe that Mrs. Mellanby considers that dental caries is also due to a deficient quantity of Vitamin D. It would appear from this theory that a deficiency of this vitamin in infants causes rickets, but should the deficiency be a small one and occur in older children, the result will be caries.

In her last paper Mrs. Mellanby has gone further than the statement already made, and, briefly stated, her conclusions are :—

1. Vitamin D arrests or prevents the onset of caries according to the age at which sufficient is given.

2. Vitamin A protects the periodontal tissues.

3. Cereals, especially oatmeal, contain a substance which inactivates Vitamin D and accelerates the onset of caries.

These conclusions are supported by Sprawson finding the beneficial effects of raw milk in the prevention of caries, and the report on the condition of the teeth of the islanders of Tristan da Cunha (Sampson). The islanders' diet consists mostly of fresh fish, raw milk, potatoes and the eggs of fowls and penguins. They grow small quantities of green vegetables, but eat little fresh meat, which is considered a luxury. No wheat or other cereals are grown. They obtain small quantities of bread, flour, sugar, cocoa, tea and coffee from ships calling once a year. Their teeth are yellowish white, strong, well calcified, and are never cleaned.

Some of Sampson's results are tabulated below :

Total persons examined	156
Temporary teeth examined	879
Temporary teeth lost	0
Temporary teeth carious	1
Permanent teeth examined	3,181
Permanent teeth carious	74
Permanent teeth lost	119

This shows that less than 2 per cent. of the teeth were carious. Compare this with the incidence in Johannesburg school-children, 93 per cent. of which have some degree of caries (Sprawson) :—

Number in whom gums were healthy..	147 (95.5%)
Number in whom gums showed gingivitis	5 (3.2%)
Number in whom there was pyorrhœa	2 (1.2%)

(Both of these people were recent settlers on the island.)

From these results we can evaluate the relative importance of the various theories of the causation of dental disease. The high cereal diet of the children of the poorer classes, besides leaving fermenting acidogenic residues in the mouth, also neutralises the good effects of the small quantities of Vitamin D in their diet. Cleansing of the teeth is not essential for the prevention of caries with an adequate diet. With a high cereal content in the diet, however, cleansing of the teeth after meals becomes much more important as a preventive measure.

Another error of calcium metabolism is that due to excessive parathyroid secretion, which causes a mobilisation of calcium from the bones and teeth with an increased serum calcium. There is a corresponding increase in the excretion of calcium in urine and fæces, and this often exceeds the intake. I have recently seen a case of this condition which, although originally thought to be very rare, is being recognised with greater frequency since Dr. Donald Hunter recently drew attention to it. This case showed a generalised osteitis fibrosa cystica with a cystic adenoma of the parathyroid.

CASE 3.—F. D., aged 17, was admitted under Dr. Hurst in 1930. He led a normal school life and played all strenuous games with ease. Of normal intelligence, he left school at the age of 14 to perform heavy manual labour. He has never suffered from rickets. For the 18 months following August, 1927, he noticed a gradually increasing deformity of the right knee, which was assuming a valgus position. There was little other skeletal change. He entered a hospital in January, 1929, where manipulation under an anæsthetic was performed. The leg was incapable of bearing weight, and he was discharged on crutches after four months in bed. At this time (May, 1929) a small, firm, round tumour was first noticed in the right side of the neck. He continued to use crutches until January, 1930, when he fell and fractured his left femur. The thigh was placed in plaster for 13 weeks, at the end of which no union had occurred. A week after the removal of the plaster fusiform swellings developed

in both thighs, and he was discharged bedridden in June, 1930.

He was admitted under Dr. Hurst on August 5th, 1930. His small stature contrasted with the adult condition of his genitalia. His chest was pigeon-shaped and bony swellings could be felt expanding many of the ribs and other bones, many of which were tender. There was marked kyphosis and scoliosis. The teeth were soft, crumbling, decalcified and carious in several places. A firm oval tumour could be felt deep in the right side of the neck in the position of the right lobe of the thyroid gland. The abdomen, lungs, optic discs and nervous system were normal. His pulse was 120, the heart was slightly enlarged and the blood pressure was systolic 138 mm. and diastolic 110 mm. The urine was alkaline, of specific gravity 1011 ; there was a trace of albumen and a very heavy white deposit of calcium and amorphous phosphates. Radiograms showed greatly diminished density of the bones, in many of which cysts were seen. Both femora were fractured, and both mandible and maxillæ showed the presence of many trabeculated cysts. There were bilateral renal calculi. The average daily excretion of calcium in the urine was .76 grams, whereas the intake was only .30 grams for a similar period.

On October 9th, Mr. E. G. Slesinger operated under gas and oxygen anæsthesia administered by Sir Francis Shipway. The right upper lobe of the thyroid was found to be pushed forward by a tense, glistening, encapsulated tumour. This was found to be cystic, and was removed by resection enucleation. The patient stood the operation well, but soon after showed signs of tetany. This was partially controlled by administration of calcium lactate and radiostoleum. The serum calcium which had been 16 milligrammes per 100 cubic centimetres before operation, fell to 7.8, but later rose to 10 mgms. per 100 cubic centimetres.

Since operation the patient has increased in weight, and radiograms show evidence of recalcification in the whole skeletal system. The teeth have become considerably hardened, and no signs of more caries have developed.

This is an extreme case of derangement of calcium metabolism, but it is quite feasible that slight degrees of hyperparathyroidism, clinically unrecognisable, could result in dental disease. In connection with this it is interesting to note that in Bassler's opinion the frequency of peri-apical rarefaction is closely associated with parathyroid disease. He also considers that other members of the endocrine system, especially the thyroid, are more closely associated with dental disease than has hitherto been suspected. This statement is merely based on theoretical grounds and has no experimental foundation.

Weston Price is convinced that dental disease is the local reaction of general disease ; he divides all individuals into three classes depending upon their reaction to rheumatic infection. Grouping 15 families accordingly, he found that the incidence of rheumatic lesions became higher as the inheritance of susceptibility increased.

Group I comprises the " rheumatic immunes." These show a high reaction to infection in the presence of peri-apical dental disease, evidenced by pyrexia and a marked leucocytosis. The local reaction is often so severe that it leads to rupture of an abscess with a return to normal. In other cases a granulation tissue surrounds the abscess, and radiograms show a localised rarefaction of bone. The highest incidence of pyorrhœa occurs in this group.

Group II consists of those who have a high inherited reaction which is beginning to break down. Here the picture varies, depending upon the degree of immunity still retained.

Group III, the " rheumatic susceptibles," are those in whom peri-apical infection runs a chronic course with the formation of little granulation tissue or rarefaction, but instead condensation of bone. Here there is often a leucopenia with normal or subnormal temperature. Dental caries occurs most often in this group. From this it appears that as the susceptibility to rheumatic infection increases, so does the incidence of caries, while the reverse applies to pyorrhœa.

In support of this, Price quotes the following table based upon his observations :—

	Incidence of Caries, per cent.	*Incidence of Pyorrhœa, per cent.*
Group I	40	40
Group II	80	not quoted
Group III ..	93	0-20

The objection to Price's theory is that it is limited to a portion of the population affected by disease, whereas many people with dental disease are apparently normal in all other respects.

Whatever the cause of dental disease, one sees how important the condition of the teeth is to the physician. For the dental surgeon rarely sees early cases of dental disease, whereas the physician often does, and depending upon his action can prevent much avoidable suffering. One cannot over-estimate the importance of examining the oral cavity carefully in routine physical examinations, and if any doubt arises the patient should be sent to the dental surgeon for more extensive

examination and the taking of radiograms if necessary.

Before concluding this paper I should like to thank Drs. Hurst and Campbell and Mr. M. Shaw for permission to publish cases and for much helpful criticism and advice.

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A Vacation Tour in the North-Eastern United States—II.

By E. T. C.

BEFORE reaching Buffalo we had ample evidence of the wide-flung police net in connection with the Lindbergh crime. Driving a car with an "out-of-state" registration, we were repeatedly stopped and questioned as to our recent movements and destination. The conduct of the investigation appeared to be as efficient as possible when the immense difficulties to be faced were considered. The size of the country alone forms, of course, the greatest hindrance to criminal investigation, while the existence of a widespread liquor traffic organisation provides an almost unassailable basis for every type of anti-social activity, especially in the immediate neighbourhood of the bigger cities.

At Buffalo, in the early evening, we entirely failed to restrain our impatience to enter Canada, and crossed the Peace Bridge without further delay. Immediately rewarded by a very pleasant winding stretch along the Niagara River, we soon lost the lethargy induced by long stretches of arterial road, and revived sufficiently by dinner time to complete the 70-odd miles to Toronto before midnight, seeing but little during our after-dark drive except the Royal Crown carefully inscribed on every sign-post along what, obviously, as visitors from America, it was intended we should not fail to recognise as being "the King's Highway."

Toronto, something of a pleasure resort in its way, we found to be easily approached by beautifully-lit boulevards along the lake front, and we were soon established in our hotel, which, with its sombre decoration and stolid British atmosphere, in every way lived up to its royal name. The next morning, on reaching the University group of buildings, we were considerably impressed both by their size and also by the unusual site they occupied in the centre of a large and busy city. Moreover, having already met with so much highly-organised research and elaborate equipment in the United States, we were most agreeably surprised by the new Banting Institute, which now accommodates the pathological and biochemical departments of the Toronto Medical School. This building, quite plain in exterior design, presented by far the most effective interior planning we had as yet seen. At a moderate initial outlay the fruit of much teaching experience had been carefully incorporated in the equipment of the student laboratories, where we noted the care taken over significant details like the flush

fitting of the bench microscope light and the convenient setting of burette stands at eye level. Excellent accommodation for the large number and great variety of experimental animals was laid out on the roof of the building, the arrangements being much superior to many of which we had experience in America, where they are very often of a sort that could not possibly exist in England.

In the specimen rooms on the pathological floors we were much interested in the system of mounting teaching material under "clock glasses," which apparently allows of much saving in preservative solution and certainly provides a finished article much less bulky and more convenient to handle than the usual square or circular jar. The entire set of specimens from one clinical case were usually grouped together and the corresponding microscopic material filed in an adjoining room—an arrangement of great benefit to the senior students and one, obviously, of which they were not slow to take advantage.

Situated on the other side of the street, the Toronto General Hospital could in many ways be regarded as old-fashioned, but was no less attractive on that account. The general arrangements of the medical side were similar to those at Guy's—long, open wards, well lit and ventilated, with but meagre porch and private room accommodation, being the general rule. Here, as in England, the nursing staff seemed to hold an importance in the scheme of things which it entirely lacked in America, where much of their proper work is delegated in a wholesale manner to orderlies and ward-maids.

We were fortunate enough to see a case of the unusual pituitary cachexia recently described by Simmonds, of which condition three instances have recently been detected at Toronto. We felt, though, that such cases must occupy a position very similar to those still more recently grouped together as "Cushing Syndrome," and which occur so rarely as to have passed largely unrecognised so far even in the practice of clinicians connected with the larger general hospitals. In the Out-Patient Department we again found attendance and general arrangements very similar to those at Guy's. We noted that the examination of the patient was essentially clinical, and not inevitably laboratory in nature as at some of the American dispensaries; also that the records were hand- and not type-written, Toronto not having adopted the standard practice in the United States, where admission fees severely restrict the total number of out-patients, and a more expensive mode of history-keeping can be successfully applied.

With vague memories of Bright at the back of our minds we could not help a surge of enthusiasm at the appearance of Toronto's Private Pavilion, which excelled both in size and the sumptuous nature of its appointments anything of the kind we had seen in America, where, of coruse, the nursing home is practically unknown. The system of private buildings in association with main hospitals makes for such manifest saving in running expenses and avoids so much unnecessary duplication of equipment that it has certainly justified itself on this side of the Atlantic. It would seem that, by deflecting into charitable channels considerable revenue otherwise dissipated elsewhere, an extension of such accommodation might prove in the end of considerable advantage to many English hospitals at present severely handicapped financially.

We were much interested, too, in Hart House—an unusual student union building architecturally modelled after the colleges of the older English Universities, where, under Oxonian supervision, the more mechanical distractions of the age were deliberately avoided, and excellent provision had been made for indoor athletics by means of squash courts, swimming bath and covered running track.

By prolonging our stay in Toronto we were unfortunately obliged to forego a visit to Montreal. Making fresh plans, we again sought the American Border at Niagara, and were in no wise disappointed by the famous spectacle of the Falls as seen from the Canadian side. We moved straight on to encounter the American Customs, and found that the Irish passport possessed by one member of the party provoked an unusually thorough examination on the basis that "no Irishman ever travelled without whiskey." In spite of Celtic repartee to the effect that "better stuff" was to be obtained in the States, our car was slowly and thoroughly dismantled, the eventual reassembly operation taking so long that we reached Rochester, N.Y.—our next stopping-place—much later than we expected, and just in time to encounter the homeward rush of automobiles from the vast Eastman Kodak Factory on the outskirts of the town.

The next day we found that the Eastman University and Hospital stood together and in a singular isolation on high ground some miles outside the town, the buildings being comparatively new, but not particularly striking in appearance. One important feature was, we learned subsequently, the inclusion of the Municipal Infirmary as an annex to the General Hospital and Medical School—a new solution, we could not help thinking, to an old and difficult problem in medical politics, and one which, as

far as we could discover, worked out quite smoothly in practice. The complete breakaway from the sordid surroundings usually associated with medical institutions in a large city here suggested the isolation of the mental asylum or fevel hospital, but the atmosphere of the whole place, if at times a little more detached than usual, was pleasant enough, and evidently a great deal of research was being carried on under the best possible conditions in the well-equipped laboratories on the upper floors. The ward and clinical laboratory arrangements followed the standard practice we had seen in Cleveland, with the additional feature of a communication on each floor leading to the corresponding floor of the municipally maintained Infirmary—obviously a great advantage in the matter of transferring patients with chronic illness requiring continued hospitalisation. An exceptionally well-designed Out-Patient Department appeared to suffer, as regards attendance, from the long and expensive tram-ride necessary in order to reach it from the town. We were told that much difficulty was experienced in the matter of giving routine treatments such as those with N.A.B., patients often defaulting before their full course was completed. Thus in many respects the complete divorce of the Out-Patient Department from the town had not been successful, although the In-Patient conditions were regarded as ideal. Perhaps the most remarkable feature at Rochester was the large and excellent library, which, although comparatively new, had been able to stock its shelves in a very thorough manner with volumes from European institutions obliged to yield to straitened circumstances following the war.

We now headed through Syracuse, Troy and Utica—in spite of their names disappointingly like many other small American towns—and, reaching the pleasant country of Vermont, began to follow the Mohawk River Trail in order to reach Boston and the Massachusetts sea coast.

Reviews

Preparing for Motherhood and Training in Infancy and Childhood. By EVELYN PANTIN. Published by *Hereford Times, Ltd. Price 2s. 6d.*

THIS book is full of concentrated common sense, and it will be an invaluable guide for mothers and nurses. The writer has resisted the temptation to be diffuse, and her suggestions are very practical and clearly expressed.

The book is free from faddism and is strongly recommended.

Modern Medical Treatment. By BELLINGHAM SMITH and FEILING. Published by Messrs. Cassell & Co., Ltd. *Price* 30*s.*

THIS work, published in two volumes, forms a very welcome addition to therapeutic literature.

A valuable feature of the book lies in the fact that before the treatment of any condition is described in detail there is a short note on the ætiology and symptoms of the disease concerned, thus constituting a rational description of the management of the patient.

The authors point out that this book is intended for the use of practitioners rather than specialists, for whom many detailed monographs on treatment already exist.

Not the least attractive is the readable nature of these volumes, and we have no hesitation in advising all general practitioners and those contemplating entering this branch of medicine to make themselves possessors of a copy.

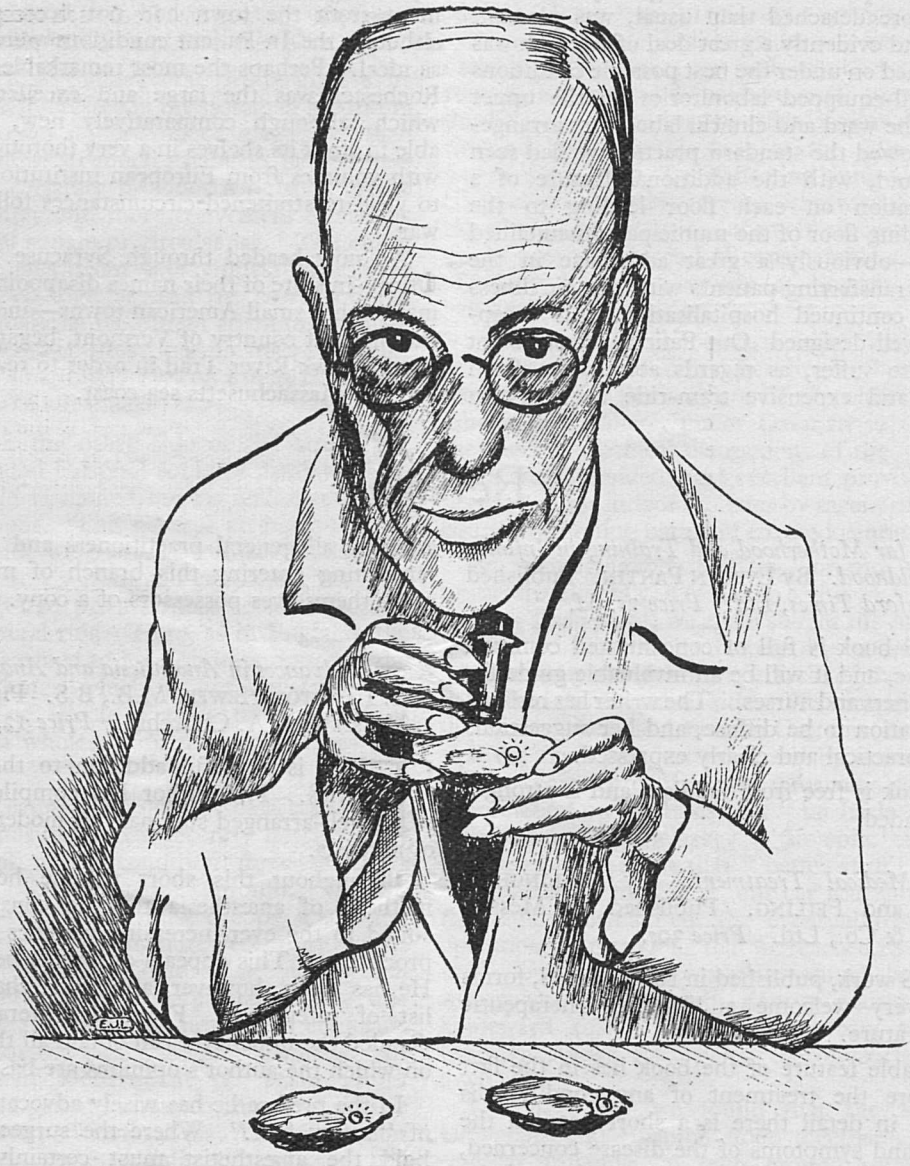
Recent Advances in Anæsthesia and Analgesia. By C. LANGTON HEWER, M.B., B.S. Published by Messrs J. & A. Churchill. *Price* 12*s.* 6*d.*

THIS is a useful addition to this valuable series. The author has compiled a clear, well-arranged summary of modern methods of narcosis.

Throughout this short volume he describes methods of anæsthesia that he considers most suited to the ever-increasing varieties of surgical procedure. This appears at first to be dogmatic. He has given, however, after each chapter a full list of references. From the literature there detailed the unbeliever can obtain all the evidence on which the author's opinions are based.

In the preface he has wisely advocated a policy of " safety first." Where the surgeon must be bold the anæsthetist must certainly be most cautious. If many of the methods outlined demand elaborate or expensive apparatus and highly skilled anæsthetists, this is because they are the ideal methods for the particular operation, *i.e.*, the safest.

To those not fully familiar with the recent trend of anæsthetic methods the most striking features are the almost routine use of " basal narcosis "



THE BIVALVE INSPECTOR

and the prominent place taken by nitrous oxide-oxygen. The author has given a brief account of the different gas machines in common use.

The chapter on resuscitation is particularly lucid. Here is a very good, simple account of the best procedure in those alarming cases of sudden cardiac failure "on the table." Although there will always be discussion about details, it would be a good thing if everyone giving anæsthetics were to "learn by heart" such a "plan of campaign" as he describes. He stresses most the tilting of the patient into the Trendelenberg position and auricular puncture.

The article on pulmonary complications and their relation to the anæsthetic is another useful statement of the present position. The author deprecates the tendency to describe every new anæsthetic method as free from such complications. He maintains that pulmonary complications are more common after special or local anæsthetics than after inhalation anæsthesia for severe operations.

Correspondence

Sidelight on Medical Life in India

To the Editor of the GAZETTE

SIR,—The following sidelight on medical life in India, in the shape of a letter recently received by me, may interest you. I should mention that an anti-rabic centre is among the activities of the hospital for which I am responsible.

"New Lines,
"Porbandar,
"12*th July*, 1932.

"*To*
"Major Hanks, Esq.,
"Surgeon, Rajkot.

"SIR,

"I the undersigned beg to submit that a dog had touched me in the month of May and I was under your treatment for a fortnight there in the hospital.

"last on the 8th July I had been to Doraji* and as owing to the rainy season I felt giddy for four hours and then recovered to the usual state. Will you please kindly let me by the return post what is the cause of it being giddy and what medicine as well as any information *re* treatment is needing for it and oblige,

"Yours most obedient servant,

"(Sd.) GULAMHUSEIN MAVJI,"

Can you beat it, Sir?

Yours, etc.,
J. B. HANCE,
Lt.-Col., I.M.S.

Rajkot,
17*th July*, 1932.

(* Dhoraji is 39 miles from Porbandar over a very bad road.—J. B. H.)

Hospital Information, etc.

NOTICES

Guy's Hospital Medical School

ARTHUR DURHAM TRAVELLING STUDENTSHIP

Applications are invited for the Arthur Durham Travelling Studentship, of the value of £100.

The Arthur Durham Travelling Student is required to proceed abroad for a period of not less than six months to carry out such investigations as may be approved or directed by the Board of Electors.

Candidates for the Studentship must be duly registered as qualified medical practitioners and must have studied in the Medical School of Guy's Hospital.

Applications should be lodged with the Hon. Secretary to the Board of Electors for the Arthur Durham Travelling Studentship, Medical School, Guy's Hospital, London, S.E., from whom further particulars may be obtained. Applications must be sent in not later than August 31st, 1932.

FINAL F.R.C.S. COURSE

September-November, 1932

A Course of Instruction for the Final Examination for the Fellowship of the Royal College of Surgeons of England will commence on September 5th. Guy's men who wish to take the course are asked to send in their names to the Medical School Office as soon as possible.

J. J. CONYBEARE,
Sub-Dean.

Pass List

LONDON UNIVERSITY.

July, 1932.

M.D. EXAMINATION.

BRANCH I.

Medicine.

H. G. Close
M. M. Cowasjee

BRANCH III.

Psychological Medicine.

M. Mackenzie.

BRANCH V.

State Medicine.

R. D. Gross.

SECOND EXAMINATION FOR MEDICAL DEGREES.

PART I.

H. W. H. Bedford
G. D. Channell
K. Chartikavanij
J. C. A. L. Colenbrander
R. L. Evans
G. L. Humphreys
B. W. Hunt
G. D. N. Milne
A. N. Redfern
A. D. Willis

PART II.

P. W. G. Baxter
H. V. Brown
J. A. G. Carmichael
A. J. Colbert
A. P. Dale Bussell
P. M. Deville
J. E. Giesen
E. H. Jones
F. H. Lee
H. A. Leggett
C. A. Lillicrap
R. F. Pusey
A. E. K. Salvi
D. G. Stevenson
F. Taylor
A. R. F. Thompson
E. D. H. Williams

M.S. EXAMINATION.

BRANCH I.

Surgery.

R. C. Brock.

FIRST EXAMINATION FOR MEDICAL DEGREES.

H. W. H. Bedford
J. C. A. L. Colenbrander
E. H. Cooper
H. A. McDonald
J. R. Miles
A. D. Milne
L. H. Cooper
J. S. W. Dryland
S. Garnjana-Goonchorn
D. Graham-Brown
G. R. Lamont
A. R. Leask
D. C. Light
G. D. N. Milne
E. H. Peace
D. A. Priestley
A. C. Ricks
L. C. Thomson
W. A. Vale

M.Sc. EXAMINATION.

Physiology.

W. R. Spurrell.

SOCIETY OF APOTHECARIES OF LONDON.

FINAL EXAMINATION.

June, 1932.

Medicine.

*G. A. Dingemans.

Forensic Medicine.

T. E. Mitchell.

Midwifery.

J. L. Bates.

July, 1932.

Medicine.

C. H. Fagge.

Forensic Medicine.

C. H. Fagge.

Midwifery.

L. Wailer.

* Now holds Diploma.

Change of Address

J. W. Woolley, L.D.S., 31, Queen Anne Street, W.1. *Langham* 1691.

Appointment

E. H. Roche, M.C., M.D., Physician to Karitane Hospital for Infants, Auckland; Assistant Physician, Auckland General Hospital; Clinical Assistant, St. Helen's Obstetric Hospital, Auckland, New Zealand.

Papers by Guy's Men

J. D. Cambrook. Case of two buried lower molars. *Proc. R.S.M.*, 1932, xxv, 1466.

C. Worster Drought. Juvenile tabes dorsalis with normal pupillary reactions. *Proc. R.S.M.*, 1932, xxv, 1402.

G. B. Pritchard and H. H. Kenshole. Complex composite odontome. *Proc. R.S.M.*, 1932, xxv, 1461.

G. H. Oriel. Specific and non-specific desensitization in allergic diseases. *Proc. R.S.M.*, 1932, xxv, 1449.

EDS. {G. A. M. L. / E. S.

GUY'S HOSPITAL GAZETTE

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PASSIM

IT is not too extravagant to be surprised that in these modern times, with all the new inventions which we see and use daily and at which our great-grandfathers, had they been alive, would have marvelled exceedingly ; yet in certain respects we have hardly advanced from their comparatively uncivilised state.

Tales have been told at Residents' Going-Off Dinners and on other occasions when effect was greater than truth, of beds in the College that were the home of various of the lower fauna, and which, until the occupant became used to their friendly presence and they lived in peaceful symbiosis together, gave him very disturbed nights.

Naturally these tales, usually told by the Staff, were treated without much value being attached to them and were regarded as possibly founded upon fact, but in general being part and parcel of those uncivilised times twenty or thirty years ago. However, this would seem to be far from the case.

With the onset of the summer the flying and leaping inhabitants of the College have increased beyond all proportions of decency or hygiene. It may be the unusual warmth of the last few weeks, or for some other reason, but it certainly remains a fact that in certain rooms of the College the wretched inhabitant has been quite unable to sleep. One resident has been driven to such lengths that he has had to purchase an expensive spraying machine with which he slaughters masses every day.

Each night he may be seen using this attractive device, by which he ensures himself a quiet night, although to one unaccustomed to the odour of the spray it is questionable whether the disease is not better than the cure.

That such a state of affairs should be possible in these days is certainly to be deplored, but we are glad to say that official action is being taken, although while the environs of the College remain as they are complete eradication of the nuisance is hardly to be expected.

▭

IN the above article we have made reference to a pest which bids fair to injure the health, or at least to disturb the peace of mind, of College dwellers. While on this subject we cannot refrain from wielding the editorial pen in a plea for the reduction of the feline population of the Hospital. We approach this matter without trepidation, for, although we realise that here we are among many animal lovers, and we consider ourselves to be in this category, yet we feel that no one who has any true regard for cats can deny that the existence led by many of them in this neighbourhood is a misery to themselves and a degradation to their species.

We would be the first to admit that a few of these animals have their uses in a large institution such as this. Their presence has a deterrent-effect on what rodent population there may be, and on occasion they are undoubtedly of definite diagnostic value. Not once, but many times, has the old ginger cat, so frequently to be seen in the Park, been carried struggling to the ward in the arms of a zealous House-Physician intent upon eliciting any evidence of cat-sensitisation in an asthmatic patient. Then again, the children in the wards

much appreciate the occasional visit of one of the younger and more playful variety.

However, these limited uses could well be served by a small and selected band of these quadrupeds. Unfortunately, cats have an unhappy knack of increasing their numbers at an alarming rate and without the observance of any eugenic principles. Thus it is that we come to find so many lean, hungry and degenerate specimens roaming the Hospital grounds.

Quite apart from the fact that their presence constitutes an eyesore and, possibly, a means of the conveyance of disease, we feel that, on humanitarian grounds, the more infirm and afflicted of these creatures should be painlessly removed.

AT a meeting of the Residents held on Thursday, August 11th, the following officers were elected for the ensuing three months: Mr. E. Sharp, President; Mr. D. Erskine, Vice-President.

ON Monday, August 15th, the Residents' Going-Off Dinner was held in the College Dining Room. It was a very enjoyable occasion, and was notable for the lack of restraint which has been present at recent functions of this sort and at the same time for the absence of that abandon for which these dinners were in the past notorious.

The Treatment of Acute and Chronic Bronchitis

Lecture-Demonstration by Dr. A. H. Douthwaite and Miss Secretan, C.S.M.M.G., July 22nd, 1932

GENTLEMEN,—To us who work chiefly in large manufacturing towns in a country whose climate throws a strain upon the hardiest, the problem of the bronchitic must always be a subject of peculiar interest, though not infrequently a source of despair. A consideration of the best available methods of treatment will, therefore, though not producing any startling therapeutic novelty, be not untimely in aiding us to crystallise our ideas and thus help in the fight against so common a malady.

It would be inexpedient to attempt to deal with all forms of bronchitis, and I propose to exclude from my remarks the respiratory catarrhs associated with (*a*) specific infections, *e.g.*, typhoid, measles and syphilis; (*b*) well-advanced chronic diseases, *e.g.*, mitral stenosis. Furthermore, the rare types known as pituitous and plastic bronchitis and the relatively uncommon acute purulent bronchitis will be left out of consideration.

We have to deal, then, with acute tracheobronchitis, acute capillary bronchitis (bronchiolitis) of children and the debilitated, and acute asthenic bronchitis, usually of the aged. From these one is naturally led to discuss the treatment of that bugbear of medical practice, chronic bronchitis, and its sequelæ of emphysema and, not uncommonly, asthma.

PREVENTION

That a vast number of cases of bronchitis need never have arisen must be clear to all of us, and a full discussion of preventive measures would lead us into the realms of industrial and social problems in addition to those peculiar to our own work. The baneful influence of fogs, engendered by the wholesale pollution of the air of our cities of otherwise valuable products of combustion, is an instance of the result of shoddy government with which we, as a profession, have to grapple.

If the condition of the upper respiratory tract be attended to, the lower will look after itself. But the attention must be thorough. The mere removal of enlarged and diseased adenoids and tonsils will be useless if the child, an established mouth-breather, be not instructed in the art of nose breathing for at least three months afterwards. Yet how seldom do we find the parents have been told of this.

I would here emphasise the fact that removal of tonsils is often quite unnecessary, and should not be a routine accompaniment of adenoid ablation.

Infection of the accessory sinuses, not often in the child, but frequently in the adult, forms the basis of a persistent bronchitis which promptly responds to local treatment. This combination is of peculiar interest because the auscultatory signs are often at the lung apices leading to suspicion of tuberculosis. In fact, many patients are sent to sanatoria when transillumination of their antra would have prevented a serious mistake. In this connection I would stress the value of carrying a simple, cheap instrument (demonstrated) with one and using it as a routine in illuminating these

cavities. The frequency with which we find an unsuspectedly infected antrum is surprising. Ideally, of course, an ætiologically obscure case of bronchitis should have the sinuses subjected to expert examination and X-rayed.

Failure to find a cure for the common cold is a constant source of reproof levelled at us by the lay press, but we must recognise the unwillingness of our critics to follow our advice for the prevention of this malady, which so often initiates the disease under discussion. Although sun and air bathing are almost unattainable ideals in England, yet I am convinced that we can materially curtail the prevalence of coryza and, therefore, bronchitis by greater insistence on the value of well ventilated rooms in the colder months, the habit of daily cold baths, the avoidance of the totally unnecessary fetish of increasing the thickness of the underclothing in winter, and the importance of isolation in the infective period. In addition, one has seriously to consider the value of prophylactic inoculations. I think you will agree with me that vaccines have proved disappointing, but I suspect that this is largely the result of faulty technique of administration. The injection of three doses of vaccine at weekly intervals rising by increments of often over 200 per cent. is usually devastating to all but the hardiest. If, however, the inoculations be administered over a longer period in the following manner, beneficial results will accrue with great frequency. Using, for instance, the stock anti-catarrh vaccine as supplied by Parke, Davis & Co., the dosage should be 0.1, 0.15, 0.2, 0.3, 0.4, 0.4, 0.5, 0.7 and 1 c.c. Should the patient, however, evince any sign of a constitutional reaction, It would be folly to attempt to complete a gradation of this type. The dose should, in fact, be reduced to that which preceded the evocative amount, and for several weeks this should be repeated. Many patients can never tolerate a larger quantity than 0.5 c.c. After giving nine or ten doses at weekly intervals, thereafter throughout the winter a fortnightly dose of half the quantity of the maximum amount attained should be injected.

The greatest advances which have been made in the prevention of bronchitis are in the direction of improved factory ventilation for those industries essentially of dusty nature, and of the introduction of intra-tracheal anæsthesia for operations on the mouth and nose.

TREATMENT

(*a*) *Of tracheitis.*—This, the short intermediary stage between a receding coryza and commencing acute bronchitis, offers a hope of arrest provided that measures be taken promptly. The hoarse voice, painful cough, sensation of rawness beneath the sternum, all point to the descent of the infection towards more vulnerable areas. Treatment is simple; it must aim at the production of cutaneous vaso-dilatation, sweating and allaying cough. For the first two desiderata the old-fashioned mustard bath followed by a bed well warmed and by hot whisky and water are all that are required. The cough should be controlled in the first place by keeping the room temperature at 60° F. day and night. This is a most important rule at this and at any more advanced stage in the disease. Laryngeal irritation and the "stuffiness" of the nose which distresses the patient and induces mouth breathing yield promptly to the inhalation of steam impregnated with volatile oils. The following mixture is of great value:—

R.	Menthol	grs. 10
	Ol. eucalypt.	mins. 15
	Ol. pini sylv.	„ 10
	Tr. benz. co.	drs. 1
	Indust. spirit	*ad* oz. 1

Sig.—Half a drachm in 1 pint of hot water. The vapour to be inhaled for 10 minutes every two hours.

Finally, drug administration should combine a substance which depresses the respiratory centre with one which acts as an expectorant in order that protective secretion should be poured out on to the dry, inflamed surfaces. During the daytime the following mixture should be given:—

R.	Diamorph. hydrochlor. ..	grs. 1/16
	Vin ipecac.	mins. 20
	Syr. prun. virg.	drs. 1
	Aquam..	*ad* oz. ½

Sig.—½ oz., t.d.s., p.c., *ex aq.*

At night-time the ideal is a combination of ipecacuanha and opium in the form of Dover's powder.

(*b*) *Of acute bronchitis.*—Within 48 hours the success or failure of these efforts will be established, and if the cough continues with production of a tearing pain in the chest, and if some degree of pyrexia is apparent, involvement of the larger bronchi becomes more and more certain, although it may be several days yet before the classical auscultatory signs are manifest. The treatment as regards the room temperature is the same, and in order to secure an even distribution of heat the bronchitis kettle is of the utmost value. This must be kept steaming day and night, for the promptitude with which relapses set in after any

considerable fluctuation of room temperature is one of the most remarkable features of the disease. The added moisture to the air is also of direct use in helping to soothe the inflamed mucous surfaces, which, it must be remembered, are red, swollen and dry at this stage. Whether any advantage is to be gained by the addition of volatile oils to the water is problematical. They certainly help to keep the nasal passages clear, and possibly they benefit the upper reaches of the bronchial tree as well. Their value as antiseptics is, of course, negligible. Bearing these points in mind, if it be decided to use these substances the following mixture answers the purpose well :—

R. Ol. cajuput.	mins.	10
Ol. santali	,,	10
Creosote	drs.	½
Ol. eucalypt.	mins.	20
Ol. terebinth.	,,	10
Indust. spirit	*ad* oz.	1

A teaspoonful of this mixture should be added to each pint of water in the kettle. Before prescribing it, it should be remembered that it is rather expensive, but the psychological effect of the issuing exotic odours is not inconsiderable.

Unquestionably the linseed poultice is helpful in this dry, painful stage, and should be used in preference to its more modern substitutes. The rubefacient action can be reinforced by sprinkling the surface of the poultice with methyl salicylate liniment. The efficacy of the poultice in treatment is certainly in part dependent upon its providing a source of moisture to be inhaled.

A great difficulty which presents itself is that of keeping the room warm and yet securing ventilation. If there be a north or north-east wind blowing, the patient will recognise the fact within a few minutes of opening the window. In such cases ventilation must be indirect through opening the door of the bedroom.

The diet needs restriction only in the direction of meat and fats, and may otherwise be as full as is demanded by the appetite, which is usually fairly well maintained if the bowels are regulated initially with calomel, and subsequently with phenolphthalein.

Sleep should be secured by the use of ten grains of Dover's powder, which should be continued even if nausea is induced, as the associated expectorant action is precisely what is required.

We now have to consider the indications for the use of certain expectorants and of respiratory sedatives in bronchitis. The older classification into stimulating and sedative expectorants cannot be maintained, for it is unscientific and at times misleading. In order to obtain guidance in the choice of drugs we must adopt the scheme of the pharmacologist, and rely upon the sites of action for purposes of differentiation. We then find four main groups : (1) Reflex, *i.e.*, drugs which act by virtue of their emetic properties exerted through irritation of the gastric mucosa. Sub-emetic doses effect expectoration and the action is usually prolonged. Such substances are ipecacuanha, antimony, squill, the saponins (*e.g.*, senega and grindelia) and ammonium carbonate. (2) Central, *i.e.*, drugs stimulating the bronchial centre, *e.g.*, apomorphine.

(3) Peripheral stimulants of secretory nerve-ends, *e.g.*, pilocarpine.

(4) Bronchial gland stimulants. The action is partly true stimulation by virtue of drugs excreted through the mucosa, *e.g.*, pix, creosote and benzoin ; partly a simple salt action increasing the non-colloidal constituents of the blood and consequently favouring secretion, *e.g.*, ammonium chloride and alkalis. In addition to this effect, iodides appear to have a specific action.

It may be taken as a general rule that group 1 is suitable for the first stage of acute bronchitis and group 4 for the later muco-purulent and chronic states. Groups 2 and 3 are used only in exceptional circumstances. A good mixture for use in the day-time is thus prepared as follows :—

R. Diamorph. hydrochlor. ..	grs.	1/16
Vin. ipecac.	mins.	25
Syr. senegæ	,,	40
Ext. grindellæ liq.	,,	15
Syr. prun. virgin.	drs.	1
Aq.	*ad* oz.	½

Sig.—½ oz., t.d.s., p.c., *ex aq.*

When, after the first few days, the cough ceases to be painful, and is accompanied by expectoration, at first mucoid and later muco-purulent respiratory depressants should be omitted during the day-time and used only at night if simple soporifics, *e.g.*, chloral, fail to secure adequate sleep. At the same time a change to the expectorants of group 4 is indicated, partly because the promonged use of gastric irritants is obviously undesirable, partly because the direct expectorants have a peculiarly beneficial action in rendering sputum less tenacious and in exerting a mild antiseptic action. For this

purpose then the following mixture might be used :—

R. Ammon. chlor.	grs.	5
Sod. bicarb.	„	12
Sod. chlor.	„	10
Pot. iod.	„	7
Syr. picis liq.	drs.	1
Aquam..	*ad* oz.	½

Sig.—½ oz., t.d.s., p.c., *ex aq.*

Any form of poulticing must now be avoided, but the care of the room temperature is still an important point. It is definitely unwise to omit the steam-kettle from treatment until the patient is well on the way to recovery.

Not infrequently one is impressed by the dyspnœa of an attack which so closely resembles that of asthma. In fact, the underlying cause is the same, and referable to bronchiolar spasm. Should, therefore, distended lungs, high-pitched wheezing and prolonged expiration feature in a case of acute bronchitis, great benefit will be experienced from an injection of three minims of adrenalin, following up by a grain of ephedrine every four hours. The spasmodic stage usually subsides with the first appearance of sputum, and therefore these drugs are required for but a short time only.

The period of convalescence should be spent, if possible, on that part of the south coast which lies westwards of Shoreham. In fact, the warm, damp atmosphere of Cornwall is particularly suitable to the bronchitic.

The treatment of acute bronchitis does not finish here. On return from the seaside the patient should be most fully investigated to determine, if possible, the cause of the attack, and, in particular, errors of posture and breathing should be corrected by the physical exercises which I shall show you shortly.

(*c*) *Of acute asthenic bronchitis.*—This dangerous form of acute bronchitis which is prone to attack the weak and aged is characterised by early general collapse with pallor, rapid pulse, low blood pressure and few, if any, signs in the chest. Within a day or so the patient rallies and develops fever and bronchitic signs, only to be followed by early basal collapse, cyanosis and congestive heart failure. The picture is that of a profound toxæmia with but little focal reaction, and its treatment is entirely different from that already outlined. In the first place on no account must opium preparations and derivatives be prescribed, for they will raise the mortality of this dangerous condition to 100 per cent. Sleeplessness may be combated by the administration of chloral and bromide. Oxygen should be given continuously through a nasal catheter, and digitalis and nux vomica administered in the form of ten-minim doses of the tinctures thrice daily. In the stage of early collapse a rapid and often life-saving reaction can be induced by the use of the electric cradle, and hot whisky and water taken in two-drachm doses (whisky) hourly. Nothing can be gained by exceeding this quantity, which suffices to enhance cutaneous vaso-dilatation, and to act as a carminative and reflex stimulant in the stomach.

In the cyanotic stage, venesection should be resorted to, but recovery then is uncommon.

(*d*) *Of bronchiolitis.*—The danger of infection of the smallest tubes is particularly to be feared in children on account of their weak expulsive powers, which are damaged further by the greater constitutional disturbance engendered by bronchitis. We thus find early evidence of a tracking of infected material into the lower bronchioles with consequent basal collapse and broncho-pneumonia.

The general management of the case is the same as that of bronchitis in adults, but the drug treatment is quite different. It is safer for a young child to have a hard, dry cough than a moist and painless variety. Consequently, full doses of belladonna should be given quite early in the disease, and the mucous membranes must be soothed by the use of the steam kettle. The timely employment of this drug (and it should be remembered that children can tolerate relatively large doses) is often efficacious in aborting a threatened attack and converting it into a simple tracheo-bronchitis. Bromide and chloral seldom fail as hypnotics in children if used adequately. Where, however, patchy collapse, cyanosis and râles are already in evidence, an emetic should be given in the hope of aiding expectoration. Here again the effect may be miraculous, converting a blue and almost moribund child into a well-oxygenated and relatively strong patient. This is the only indication for the use of apomorphine as an expectorant, and then only if vinum ipecac. fail. The latter preparation must be given in not less than half-drachm doses for a child of one year. For the same age, 1/40 grain apomorphine should be injected.

Finally, friction of the chest appears to benefit these cases, especially if applied to the posterior bases.

(*e*) *Of chronic bronchitis.*—From time to time, especially in winter months, the chronic bronchitic is liable to outbreaks of an acute form of the disease, and it is then in particular that superadded asthmatic paroxysm is often noticed. The treatment of these conditions has already been discussed, but it should be noted that the use of reflex expectorants is unnecessary because sputum is present even in the early phases of the acute exacerbation.

For the winter cough of chronic bronchitis and its attendent distress, particularly on rising, quite the best drug treatment comprises the administration of iodides, alkaline salts and tar.

Apart from this, the treatment of chronic bronchitis, and its attendant emphysema, consists of measures designed to raise the resistance to catarrhal infections and of certain forms of physical treatment.

The former comprises wintering on the south coast, or, preferably, on an island such as the Balearic Isles or Madeira, and the administration of vaccines every year in the manner which I have already outlined. In addition it is well, particularly for the ill-nourished bronchitic, to advise the use of cod-liver oil in small doses throughout the winter.

The physical treatment of chronic bronchitis has been in the past grossly neglected, yet it offers the most potent means of delaying the onset of emphysema, of aiding the embarrassed circulation, of ridding the bronchial tubes of retained secretion, and of improving the general condition and prolonging life by an appreciable extent.

It should be remembered that the over-distension of the lung which precedes true emphysema entails very imperfect respiration, which is carried out by unusual muscular effort. If the patient can regain (*a*) a mobile thorax in the place of the semi-rigid chest which is usually seen, (*b*) power of full expiration—then emphysema and right-sided heart failure may never develop.

It is for this reason that we teach them expiratory exercises, which we will now demonstrate to you. In chronic cases a considerable degree of thoracic rigidity must be overcome before any attempt at breathing exercises can be instituted. In fact, the exercises are very similar to those employed in the treatment of asthma, and which have been described by Dr. Hurst[1] and subsequently by others in this country.[2]

Each cycle of deep breathing commences with forced expiration and finishes on the expiratory phase, for it is essentially a reduction of lung bulk at which one aims. The value of the movements is greatly enhanced by the manual assistance of a skilled masseuse, who imparts an added force to expiration by the performance of certain manœuvres on the chest wall. Where appreciable bronchial dilatation has developed, expulsion of muco-purulent secretion is aided by the performance of exercises by the patient when lying across a narrow couch in such a manner that the trunk is tilted downwards and the weight supported by the hands on the floor. Brisk coughing is induced, and large amounts of sputum may thus be expelled.

After this has been done, a vapourised antiseptic should be inhaled. The usual forms of inhaler are valueless because the drug is presented in large droplets, and rarely passes the upper regions of the trachea. An apparatus such as that termed "Apneu" results in such fine subdivision of the antiseptic that the issuing vapour has the consistency of tobacco smoke, and can be induced to penetrate into the farthest reaches of the bronchial tree. I find that creosote or pine oil serves the purpose best, and they should be inhaled at five-minute stretches with two-minute intervals for a total inhalation period of 20 minutes twice daily.

In conclusion, I would draw attention to the value of periodic venesection in treating the chronic bronchitic who has developed emphysema and venous engorgement.

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Bright Intervals—II.

I'VE never heard a person snore
Like Mr. ——, who sleeps next dore ;
For hours and hours, without a pores,
My next-door neighbour nightly snores.

'Tis as an inward breath he draws
He perpetrates his vilest snaws ;
Enough to give one every caws
To sling the sleeper out of daws.

If only now and then he'd pause
And rest a little on his ause,
'Twould be a great relief, because
No snause would issue from his jause.

Alas ! At constant pitch he roars,
As if expecting rich apploars ;
But death to him who would encore
Our Mr. ——, who sleeps next dore.

" SINISTER."

A Vacation Tour in the North-Eastern United States—III.

By E. T. C.

THAT we should elect to stop for a few moments some five thousand feet up at the summit of the Mohawk trail and there find two British fellow passengers of last year's trans-atlantic crossing with whom to share the unrivalled view into four States formed a curious coincidence and kept us talking the rest of the way to Boston.

Reaching the University town of Cambridge on the outskirts of the city, we were advised by friends at Harvard to make that our base for subsequent exploration of the three large medical schools located in different parts of Boston. In Cambridge, flannel " bags " were so much in evidence that we almost felt at home again. Here for the first time in America we found a " University town " in the genuine sense, and one certainly without the collegiate type of self-consciousness our limited experience had encountered elsewhere. The Harvard Buildings were carried out in the red brick and white-painted woodwork of the New England Colonial, perhaps the most graceful of all American architectural styles, and a derivative of the Georgian manner so well seen in the Counting House at Guy's. " Rooms " were, perhaps, on a slightly more elaborate scale than even in the newer buildings at home, and the " halls " decidedly less formal, though not to the point seen in most American universities, where there is very seldom a " high table."

The reclamation of much land from a tidal estuary has allowed Boston to lie scattered over a large area and prevented the erection of the sky-scraper structures. One or two of the older churches in the Wren manner add to the unmistakably English appearance of the town, while not only from the policemen but everywhere is to be heard a brogue quite evidently that of Southern Ireland.

The Massachusetts General, easily the oldest institute of its kind in America, has carefully preserved most of its original building, the domed amphitheatre in which surgical anæsthesia was first successfully given still being used for the demonstration and discussion of clinical cases. At this hospital an attempt has been made to tackle a very difficult problem, namely, the provision of accommodation for the middle-class patient who cannot afford the " private pavilion " or nursing home. A large and entirely new building has been devoted to this purpose, and already in its second year of operation shows every sign of success as the facilities it offers become better known. The X-ray equipment in this building was of the new rapid exposure type, producing plates of remarkable clarity and detail, requiring, however, a complete revision of interpretation values.

The Massachusetts General, however, provided only part of the teaching service for the Harvard medical school whose main buildings and museum were adjacent to the Peter Bent Brigham Hospital on the other side of the town. Constructed since the war in the pavilion style we are accustomed in England to associate with fever hospitals, this institution was unique in the deliberate maintenance of its open wards at the very pleasant temperature of 65° F., which constituted a moderation in the use of central heating we had failed to observe further south, where indoor thermometer readings over 80° F. were the general rule in winter, and chronic upper respiratory infection seemed, in consequence, alarmingly frequent. Much stress was laid at the " Brigham " on the use of the ample sun porch and open sleeping accommodation, which was considered to hasten

convalescence and shorten the patient's average length of stay in hospital.

In one department research on the physiology of the nervous system was much stimulated by the well-known school of neuro-surgery, which at the moment appeared to be investigating the functions of the hypothalamic areas of the brain by operative methods. We were shown several very interesting decerebrate animals in which interference with subthalamic areas had produced the curious affective state known as "unilateral rage," in which the animal responds to minor stimulation on one side of its body by all the manifestations of extreme anger.

Many of the newer buildings were by the architect whose work had been so much in evidence at Cleveland, and, with their buff facing, provided a striking contrast both to the red brick of the associated hospital and grey stone structure of the older school. Pathology had been exceptionally well accommodated, but remained essentially clinical in attitude, the cleavage between school and hospital being, as far as we could discover, much more complete than was usual elsewhere in the United States. A striking feature of the entire organisation was the general use of the dictaphone for the recording of case histories, a method expensive to instal but giving excellent results in practice.

We were rather intrigued to discover that the medical service most sought after by the students of the Harvard School was that provided by the Boston City Hospital. A visit to this institution immediately enlightened us as to the reason. Run by the municipality, the clinical material there available seemed of endless variety and unlimited in quantity. Although many of the wards were of the older type and crowded to capacity in a way that might have been seen at the old Lambeth Infirmary, the practical experience to be gained from the house appointments was evidently of an exceptional order, while the opportunities for research work seemed in no way to lag behind those provided at hospitals running on a voluntary basis. The remarkable developments in the knowledge of blood diseases resulting from the recent work carried out by investigators at this school bear ample testimony to the possibilities as regards teaching and research at municipal institutions.

Moving on to the Yale School at New Haven, we were unlucky in that the approach of the annual medical meetings at Atlantic City, which we, too, hoped to attend the following week, had already almost emptied the teaching departments. At first we could not help being much impressed by the contrast between the lavish *pseudo*-Gothic appearance of the University and the infinitely more attractive "Colonial" style of the hospital and its associated Institute of Human Relations. The latter, in which we were much interested, is, we were given to understand, the realisation of an idea to be attributed to that doyen of American medicine, William H. Welch. It incorporates under one roof the many associations of medicine as a science with the humanities in their theological and social aspects. In the course of a brief visit we could not appreciate this institute other than as an unusual and quite definitely expensive experiment, likely to yield its data slowly and needing a great deal of wisdom in its guidance.

The hospital at first seemed much too large for the needs of a town comprising some 150,000 inhabitants, but we had forgotten the large rural area of Connecticut to whose needs it was also intended to administer. The ward and laboratory arrangements were of the more or less standardised American type seen at Cleveland and Rochester, with a silent call system of coloured light signals for house officers that entirely eliminated the noise and inefficiency of ordinary telephones. Research problems were mainly in connection with infectious conditions such as infantile paralysis and rheumatic fever, great use being made of the comparative scattering of the local population in the investigation of the important epidemiological aspects of these diseases.

With so much still to see we were sorry to have to leave New Haven, but the necessity of reaching Atlantic City in time for the most important medical meetings of the year, and our anxiety not to miss any part of that typical American institution—the convention or congress, compelled us to cut our visit short. Accordingly we headed southward for the seaside resort whose skyscraper hotels annually encompass the most diverse collections of individuals gathered together from an entire continent in the name of every activity under the sun. We were to discover later that on that particular day not only medical men were hastening to this Margate-like Mecca of conventions, but also many reverent Methodist-Episcopalians and several thousand less reverent Rotarians as well, so that in the end the precaution of an early arrival proved highly advisable.

On our return to Baltimore at the conclusion of the Atlantic City meetings we could not help reflecting on the great difference that American hospitality had made to our three weeks' sightseeing, and resolved to do our very best in a similar way should we ever play host in England.

Reviews

Intracranial Suppuration. By L. MILES ATKINSON, F.R.C.S., M.B., B.S. Published by Messrs. Jonathan Cope, Ltd. *Price* 5*s.* net.

THIS is a small book of just over 100 pages. It is written very clearly and in a very readable manner, and the subject-matter, which consists almost entirely of complications of ear and nose diseases, is essentially concise in its outlay.

Each chapter is treated in an orderly manner, starting with a consideration of pathology and anatomy and ending with treatment.

Although of most benefit to those already qualified this book could be read with advantage by all medical students, as it gives a rather fuller account of ear, nose and throat complications than most text-books dealing with general surgery, whilst at the same time being in no way tedious or long-winded.

The author is to be congratulated on presenting all the essentials in such an attractive manner and such a small volume.

Prizes for Clinical Papers by Students and Newly Qualified Practitioners

(Reprinted from the *British Medical Journal*, August 13th, 1932)

THE Council of the British Medical Association has decided to offer prizes for short clinical papers by fourth and subsequent year medical students and newly qualified practitioners, under the heading: "Describe three cases of medical interest which have been under your care and, for each case, discuss differential diagnosis, ætiology, methods of prevention (where available), treatment, and prognosis." For this purpose the medical schools of the British Empire have been grouped by the Council as follows:—

GROUP 1.—University of Aberdeen; University of St. Andrew's.

GROUP 2.—Queen's University of Belfast; University of Dublin (Trinity College); National University of Ireland (University College, Cork; University College, Dublin; University College, Galway); Royal College of Surgeons in Ireland (Schools of Surgery).

GROUP 3.—University of Birmingham; University of Bristol; University of Wales.

GROUP 4.—University of Durham; University of Leeds; University of Sheffield.

GROUP 5.—University of Edinburgh; School of Medicine of the Royal Colleges, Edinburgh.

GROUP 6.—University of Glasgow; Anderson College of Medicine; Queen Margaret College (School of Medicine for Women); St. Mungo's College.

GROUP 7.—University of Liverpool; Victoria University of Manchester.

GROUP 8.—London: Charing Cross Hospital Medical School; King's College Hospital Medical School.

GROUP 9.—London: Guy's Hospital Medical School; London Hospital Medical College.

GROUP 10.—London: London (Royal Free Hospital) School of Medicine for Women; University College Hospital Medical School.

GROUP 11.—London: Middlesex Hospital Medical School; St. Mary's Hospital Medical School.

GROUP 12.—London: St. Bartholomew's Hospital Medical College; St. George's Hospital Medical School.

GROUP 13.—London: St. Thomas's Hospital Medical School; Westminster Hospital Medical School.

GROUP 14.—The medical schools of the Empire other than those of the British Isles.

For each group a prize consisting of a certificate signed by the President of the Association, together with a cheque for £10, will be available. Each clinical paper, which must not exceed 3,500 words (equivalent to about 2½ pages of the *British Medical Journal*), will be adjudicated upon by examiners appointed by the Council from among members of the Association not resident in the area of the group in question. If in the case of any group no clinical paper received is considered by the examiners to be deserving of a prize, no prize will be awarded in that group. Each paper must be plainly written or typed on foolscap (one side only),

and reach the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than April 15th, 1933. Each paper must be signed by a pseudonym only, and be accompanied by a signed statement that it has been the *bona fide* work of the competitor, and in what capacity he or she comes within the definition (as above) of those eligible to compete, together with particulars of his or her full name, pseudonym, address, medical school, and (if on *Medical Register*) month and year in which the examination qualifying for registration was passed.

Sport

Tennis

THE Lawn Tennis Club were more successful this year than last as regards Club matches, but were unfortunate in losing both the Senior and Junior Inter-Hospital Cups.

In the Club matches the 1st VI played 11 matches, won 5, and lost 6; the 2nd VI played 13 matches, won 8, and lost 5.

In the Inter-Hospitals' Cup Guy's had a bye into the second round, where they met and defeated the London Hospital with considerable ease in both the 1st and 2nd VI's. The 1st VI won 14—1 and the 2nd, 15—0. In the Semi-Final, Guy's met St. Thomas's Hospital. The 1st VI were beaten by 8 matches to 6, one being unplayed. The 2nd VI fared little better, being beaten by 8 matches to 7.

Cricket

Guy's v. St. Anne's

THIS match was played at Virginia Water on Wednesday, June 1st, and resulted in a win for Guy's by 114 runs.

Guy's batted first and made the useful total of 209 for 9 wickets declared. Both Brown (59) and Willis (51) showed great promise, and should develop into useful bats.

St. Anne's found the Hospital bowling rather too good, and were dismissed for 85, Walter Lewis and Whitteridge being the most successful bowlers.

Scores—Guy's, 209 for 9 dec.; St. Anne's, 85.

Guy's

Walter Lewis, c. Illingworth, b. Willis	16
T. D. Ridsdale, st. Blaber, b. Hawks	22
J. A. G. Starnes, run out	15
G. M. A. Brown, b. Hawks	59
A. D. Willis, c. Jarvis, b. Hawks	51
P. C. Alexander, c. Cloud, b. Hawks	8
R. M. Outfin, b. Willis	0
H. Cameron, c. Harding, b. Willis	3
H. D. Devan, c. Cloud, b. Hawks	5
T. S. Eddy, not out	18
S. M. Whitteridge, not out	8
Total	209

Bowling.—Walter Lewis 3 for 15, Alexander 2 for 26, Whitteridge 4 for 25.

Guy's v. Catford Wanderers

PLAYED on Saturday, June 4th, and resulted in a draw. Catford Wanderers batted first and, due mainly to an innings of 101 not out by Rosignol, made a total of 216 for 7 declared.

Guy's were left so little time in which to bat that a definite result was quite impossible, but the Hospital scored quickly to make 135 for 3. Both Starnes (63 not out) and W. H. Lewis (35) played good innings.

Scores—Catford Wanderers, 216 for 7 dec.; good innings; Guy's, 135 for 3.

Guy's

J. A. G. Starnes, not out	63
W. H. Lewis, run out	35
G. C. Wright, b. Hook	4
G. M. A. Brown, run out	10
G. V. Doherty, not out	11
Extras	11
Total	135

R. M. Outfin, T. S. Eddy, H. Cameron, S. M. Whitteridge, R. L. Evans, J. P. O'Shea—did not bat.

Bowling.—O'Shea 1 for 22, Eddy 1 for 20, Doherty 2 for 82, Whitteridge 3 for 42.

Guy's v. Catford Wanderers

ON Wednesday, June 8th, at Catford. This match resulted in a draw. Cameron won the toss and batted first. W. H. Lewis (55) and Starnes (33) gave the Hospital a good start, following which Devan made a faultless 66 not out. Willis (40) also played a good innings, the Hospital eventually making 231 for 5 wickets declared.

Catford Wanderers started shaky, but soon settled down and very nearly got the runs, requiring only 14 runs to win at the finish.

Scores—Guy's, 231 for 5 dec.; Catford Wanderers, 218 for 3.

Guy's

W. H. Lewis, c. Baker, b. Champion	55
J. A. G. Starnes, c. and b. Miller	33
G. M. A. Brown, c. Baker, b. Miller	0
H. D. Devan, not out	66
A. D. Willis, c. Baker, b. Miller	40
P. C. Alexander, b. Miller	16
S. M. Whitteridge, not out	21
Extras	0
Total	231

R. V. Payne, T. Mitchell, E. Evans, H. Cameron, did not bat.

Bowling.—Alexander 1 for 96, Whitteridge 2 for 43.

Guy's v. Bromley

THIS match was played on Saturday, June 11th, at Bromley, and resulted in a win for Guy's by 1 wicket.

Bromley won the toss and batted first, and were dismissed for 132, due to the excellent bowling of Walter Lewis and O'Shea.

Guy's innings started badly, and when 9 wickets had fallen for 107 runs the position looked hopeless, until a stand between Whitteridge and Evans gradually advanced the Hospital score until it was within eight runs of Bromley's. At this point the bowler was rather overcome by the excitement of the moment and bowled a full toss on the leg, which Whitteridge sent out of the ground. The next ball being a long hop on the leg, was hit to the boundary, so winning the most exciting game the Hospital have played this season.

Scores—Bromley, 132; Guy's, 141 for 9 wickets.

Guy's

J. A. G. Starnes, c. Brown, b. Buck	0
Walter Lewis, b. Buck	11
G. C. Wright, c. Brown, b. Moore	16
H. D. Devan, c. Brown, b. Mortimer	27
G. V. Doherty, c. Brown, b. Buck	15
A. D. Willis, b. Mortimer	23
R. M. Outfin, c. Chevry, b. Mortimer	0
H. Cameron, st. Brown, b. Moore	3
S. M. Whitteridge, run out	28
J. P. O'Shea, c. Winstanley, b. Mortimer	4
R. L. Evans, not out	7
Extras	7
Total	141

Bowling.—O'Shea 3 for 30, Walter Lewis 4 for 30, Whitteridge 1 for 43.

Guy's v. Sutton

PLAYED on Saturday, July 16th, at Honor Oak Park, and resulted in a win for the Hospital by 76 runs.

Whitteridge won the toss and decided to bat on an excellent fast wicket. The opening batmen were soon dismissed, but the fast wicket suited Doherty, who scored a chanceless 60. There were numerous other bright knocks, Outfin and O'Shea each hitting an enormous six during their innings, Guy's eventually declaring with 224 for 9 wickets.

Sutton were given plenty of time in which to go for the runs, but they elected to go slowly in an attempt to play out time, which they failed to do by five minutes, due to the consistent bowling of the Hospital.

Scores—Guy's, 224 for 9; Sutton, 148.

Guy's

T. D. Ridsdale, b. Kelley	6
G. C. Wright, c. Vale, b. Galland	3
G. V. Doherty, b. Galland	60
G. M. A. Brown, run out	23
J. B. Priestley, c. Knupper, b. Kelley	20
R. M. Outfin, c. Kelley, b. Napper	35
S. M. Whitteridge, b. Fronter	6
T. J. Lowry, not out	15
T. S. Eddy, b. Front	0
J. P. O'Shea, c. Rinder, b. Napper	23
Extras	23
Total	224

R. L. Evans did not bat.

Bowling.—O'Shea 3 for 41, Whitteridge 2 for 25, Evans 2 for 16, Doherty 3 for 10.

Guy's v. Three Counties

ON Wednesday, July 20. This match was played at Arlsey and resulted in a win for Three Counties by 6 wickets.

Guy's won the toss and opened on a perfect wicket, but good bowling dismissed our opening batsmen cheaply. Doherty, however, settled down to play a sound innings and eventually made 77, the Hospital total closing at 180.

When Three Counties opened their innings we soon realised the need for our absent fast bowlers against such a strong batting side, who passed our score with the loss of four wickets, all of which were taken by Doherty.

Scores—Guy's, 180; Three Counties, 181 for 4 wickets.

Guy's

T. D. Ridsdale, c. Bircumshaw, b. Smart ..	9
G. C. Wright, b. R. Robinson	4
G. V. Doherty, c. R. Robinson, b. R. R. Robinson	77
M. L. Walt, st. Page, b. Haywood	3
E. Rosenberg, b. R. R. Robinson	14
A. R. Clarke, b. R. R. Robinson	0
J. B. Knight, c. Page, b. Watt	0
S. M. Whitteridge, b. R. R. Robinson ..	10
T. J. Eddy, b. Saunders	19
A. G. Heberlein, c. Saunders, b. Bircumshaw	18
N. E. Gillham, not out	1
Extras	24
Total	180

Bowling.—Doherty 4 for 89.

Cricket Season, 1932

ON the whole, the cricket season which has just ended has been a fairly successful one. Fourteen matches were played, six were won, six were lost, and two were drawn. These results do not look particularly striking when committed to paper, but it must be remembered that in this game, as in all others at the hospital, people can only play when their work and the examiners let them, and it was seldom, indeed, that we had our strongest team available. Some very good victories were won with much weakened sides.

In the Cup Ties we were somewhat unfortunate to lose to Bart.'s in the Semi-Final. After dismissing them for the very moderate score of 132, we had the misfortune to bat on a very sticky wicket. We were always in difficulties against their good length bowling, which was most admirably managed by their Captain, J. A. Nunn, and we were ultimately beaten by 19 runs. In the first round, we had beaten University College Hospital with some ease. In the Club games we defeated Bart.'s, Sutton and Old Leysians at home, and Bromley and Virginia Water away. We lost to Honor Oak twice, Wimbledon, Private Banks and Three Counties. Both matches with Catford Wanderers were drawn.

The batting of the side as a whole was more consistent than it has been for some years. G. V. Doherty, A. D. Willis and J. A. G. Starnes all batted well. Doherty, in particular, played some excellent knocks, and had a very good year. Our bowling was much our strongest point, and was very good indeed. J. P. O'Shea and Walter Lewis both bowled admirably, and they were well supported by S. M. Whitteridge, R. V. Payne and P. C. Alexander. The fielding on the whole was good. The reserve strength was greater than it has been for some years, and G. M. A. Brown and G. C. Wright, to mention but two, both played some good innings for the first eleven.

In conclusion, a word of praise to Kirby. The wickets he prepared, both in the nets and on the square, were excellent, and that in spite of some difficult weather at the beginning of the season. The improvement of the last two years has been enormous, and the wicket is now a very good one indeed.

Hospital Information, etc.

Notice

ASHLEY COOPER STUDENTSHIP

The studentship, which, under the authority of the Charity Commissioners, is maintained by the Physicians and Surgeons of Guy's Hospital as Trustees of the Astley Cooper Prize Fund, is now vacant.

The Student, who is called the "Astley Cooper Assistant to the Curator of the Gordon Museum," will be elected in the first place for a period ending in July, 1933, but will then be eligible for re-election for three years.

The present value of the Studentship is about £150 per annum, with an additional sum of £50 for expenses.

In accordance with the terms of Sir Astley Cooper's will, the Studentship shall not at any time be awarded to any member of the Staff of Guy's or St. Thomas's Hospital, nor to anyone related by blood or affinity to them.

Particulars regarding the Studentship can be obtained from Mr. Philip Turner, M.S., Guy's Hospital, London Bridge, S.E.1, to whom applications for the post should be addressed on or before September 10th, 1932.

Birth

MILLER.—On August 7th, 1932, to Dorothy (née Davies), wife of W. H. Miller, at St. Brannock's, Mundesley, Norfolk—a son.

Change of Address

S. A. Leader, 82, Wimpole Street, W.1. *Welbeck 3477 and 2405.*

EDS. { G. A. M. L. / E. S.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLVI *3rd September 1932* *Number 1151*

PASSIM

AT the moment the three topics of Religion, Sex and Education hardly ever fail to excite interest and comment in the public mind, and it is significant that at last the conservative stability of the medical profession has yielded, and the searchlight has been thrown on its own method of training. Luckily it has come from within. For some weeks past the *Lancet* has been conducting an interesting symposium on, "What is wrong with the Medical Curriculum?" It is not the voice of the dissatisfied student who has failed to placate the examiners, nor even that of the youthful general practitioner who finds himself unable to treat the common cold, but the demand of the teaching and examining authorities. For once all branches of the profession are almost in agreement. The training could be improved. Quite how is another matter, and there is still the fear that if the problem were left to the specialist the idea of reform evolved would be the spending of an extra few months in a particular special department.

It is well that the layman is ignorant on these matters. To him it would seem incomprehensible that out of a six- or seven-years' course only six or nine months should be spent in a general medical ward, or that anyone should be allowed to qualify having conducted 15 labours or given about a dozen anæsthetics.

The aim of a medical education should be to turn out efficient general practitioners, able to deal with the commoner diseases, knowing when to turn for special advice and further investigation, and capable of interpreting such information. It seems obvious that the clinical period of training should be the most important and the longest, but at the moment that is encroached upon by time given up to pre-clinical studies, ostensibly with the idea of providing a so-called scientific basis. It is questionable whether a good general education is not the best training in that respect. A sufficient standard in Physics and Chemistry could be reached at school, and the structural minutiæ of Biology necessary for the present examinations might well give place to a more comprehensive course embracing heredity and similar problems. Physiology must always be the corner-stone of the pre-clinical work, but fortunate are the pupils of Professor Pembrey, who through it can come into contact with clinical cases at the earliest possible moment. An earlier entrance to the wards is a most reasonable demand. The present pre-clinical curriculum seems overloaded for the future general practitioner, and yet only of little help to the future specialist, who finds it inadequate in his own particular line. Even the Surgical Registrar has still to return to the Medical School to learn his anatomy.

The same general criticism applies to much that is the Clinical period, but here there is less agreement. We can only await with great interest the result of the investigations recently started by the Universities of London and Cambridge.

THE long-awaited advent of the new telephone system which we have been so eagerly expecting has at last materialised. For several weeks now, since the beginning of the installation was first heralded in these pages, the new and efficient-looking receivers have been appearing all over the Hospital and have taken the place of the ancient

clumsy affairs with their attached jumble of wires to which we have become accustomed.

No one can have the least regret at the disappearance of the old and obsolete method of communication with its accompanying noise and rattle which was the *ave atque vale* of all telephonic conversation and which was so disturbing to the nerves of patients. Now this discordant noise has been replaced by the almost musical note of the new system, and so out of place does it at first sound that to start with its imperious summons has entirely failed to get the recognition which it so urgently demands.

No longer, it is to be hoped, will terse orders exhorting one to ring one less than the number required appear on the Surgery telephone, and in spite of which the number was so often found to be incorrect, so that any danger of talking to St. Thomas's House instead of the College will at last be removed.

▭

It is with great regret that we have to report the resignation of Mr. G. A. M. Lintott from the post of Editor of this journal, with which he has been connected for the last twelve months.

▭

The 1932 Dinner of the Thirty Club will be held at the Trocadero on Saturday, October 8th. Details will be sent to members shortly.

Obituary

GEORGE KENDALL, M.R.C.S., L.R.C.P.

After a retirement of only four years, Dr. George Kendall died at his home in King's Drive, Eastbourne, on Friday last, and his death will be mourned by a wide circle of friends.

Dr. Kendall was the son of Mr. Charles Fisher Kendall, of Clapham, and was born there on 28th July, 1856. Educated at University College School and at Guy's Hospital, he qualified as M.R.C.S. (Eng.) and L.R.C.P. (Lond.).

In 1884 Dr. Kendall, who had been practising in Yorkshire, took up a medical partnership at Battle, and for no fewer than 44 years he lived and practised in that town. After a residence of two years he married Ada Louisa, daughter of Mr. James Clark Gatley, of Newcastle-on-Tyne, and two daughters were born to them.

In every good work associated with Battle and the district Dr. Kendall lent a helping hand, and he became known as the Greatheart of the district —a tribute to his qualities. Cricket and billiards were his favourite relaxations.

During the Great War, although advancing in years and with the strain of the whole district to work alone, he was Medical Officer at Countess Brassey's Hospital at Normanhurst, in conjunction with Dr. Ticehurst, of Hastings, and under the auspices of the Red Cross he was responsible for classes of instruction both to the women's and men's detachments. The loss to the town and the neighbourhood when Dr. Kendall came to retire was felt to be great, but his huge number of friends all joined in wishing him long life and happiness in his well-deserved retirement after nearly 50 years of service, and marked their sense of appreciation by making him a handsome presentation.

Paroxysmal Tachycardia and Paroxysmal Fibrillation

A Lecture delivered at Guy's Hospital on Friday, August 19th, 1932, by Dr. M. Campbell

Gentlemen,—For my subject to-day I have chosen paroxysmal tachycardia. One reason why this diagnosis is so important is that you should try to settle, as accurately as you can, the exact nature of any sort of "heart attack." All sensible people realise that their ability to continue work depends on the condition of their heart, and in addition nervous people are frightened by the thought of sudden death, which they associate with all forms of heart disease. So when you hear the history of a heart attack you should do all you can to make an exact diagnosis, not only to adopt appropriate treatment, but also to know how reassuring you can be to the patient in prognosis and what advice you should give about the general conditions of his life.

DIAGNOSIS

In many cardiac cases you have to rely on the history for a diagnosis much more than on the physical examination; in this case it depends particularly on your getting a statement as to whether the onset of the attack was abrupt or not. An attack nearly always ends abruptly too, but the patient may not notice so clearly the abrupt ending, because the heart has been upset, and some simple tachycardia may continue. The attack is so sudden that the patient knows the moment it started, and even some time afterwards this point generally remains clear in his mind.

Another thing which often makes you think of paroxysmal tachycardia rather than of any general form of palpitation is that the patient complains of a particular number of attacks and knows how long they lasted. Palpitation is one of the commonest symptoms, and if you ask most patients when they last had it, or how long it lasted, their answer is vague, because it starts and stops so gradually, and is present so frequently. But when it is paroxysmal tachycardia the patient will answer your questions very definitely; he may give the particular dates of the attacks and say they lasted ten minutes, or six hours, as the case may be.

Another point in the diagnosis is that the first thing noticed is nearly always the rapid action of the heart, though many symptoms are produced by the attack as it goes on. If a patient has a fainting attack palpitation is felt later, but in paroxysmal tachycardia this is the first thing noted, and later there may be faintness or discomfort over the heart, or even pain, or a large number of other symptoms. If you have doubt about the nature of a case when you take the history, it rarely turns out to be paroxysmal tachycardia. If you are fortunate in seeing the attack, the constancy of the rate at rest or after exercise will make you almost certain of the diagnosis, but this is true of flutter as well.

Next you want to know whether the attack was regular or irregular. You might think it difficult to get that information unless you saw the attack. With rapid action of the heart it is often difficult when feeling the pulse to be certain whether it is regular; but the untrained patient can generally give a correct answer if you explain to him the two forms, the regular and the irregular.

TYPES OF PAROXYSMAL TACHYCARDIA

Paroxysmal fibrillation and flutter are closely related and must, to some extent, be considered with simple paroxysmal tachycardia. If you take all the group in which there are abrupt changes in the heart rate, you can make three divisions: firstly, simple paroxysmal tachycardia; secondly, paroxysmal flutter, and thirdly, paroxysmal fibrillation. This last will always be irregular, and so you can generally diagnose it on the history, even if you do not see the attack. Paroxysmal flutter may be either regular or irregular, according to whether the degree of heart block is constant or varying all through the attack, for the auricular rate is generally too fast for the ventricle to respond each time. If it is irregular, you cannot, as a rule, distinguish it clinically from fibrillation without seeing the patient in an attack and getting graphic records. But if paroxysmal flutter has a constant degree of block, it is difficult to distinguish it from simple paroxysmal tachycardia on clinical evidence alone, and we must to some extent consider the two conditions together.

There are also the three main types of simple paroxysmal tachycardia: the ordinary auricular type, which is responsible for about three-quarters of the attacks; the rarer type where the impulse starts in the A.-V. node; and the type where the impulse starts in the ventricular muscle, which is responsible for one-tenth to one-quarter of the cases (see later).

All these have a clear and abrupt onset, and they are all attacks of tachycardia. The heart rate in paroxysmal tachycardia is generally between 160 and 220, whereas in flutter the auricular rate is generally 240 to 360. But if there is 2 : 1 heart-block, the ventricular rate is no more than 180 or so; it may be the same as in paroxysmal tachycardia. It is begging the question to say that every attack with a rate over 220 or 240 is flutter; we have to consider the whole evidence. Many of the attacks with a rate of about 250 are in other ways more like paroxysmal tachycardia than flutter, and must be regarded at least as borderline cases until we know more about the mechanism of these attacks. They resemble in every way a series of extra-systoles, so for each type of extra-systole you get a corresponding tachycardia. Just as you may get a compensatory pause after a single extra-systole, you may get the same compensatory pause at the end of a paroxysm of tachycardia, and often it, or the bump of the following beat, is noticed by the patient, so that he knows just when it stops. One of the theories put forward is that the paroxysmal tachycardia is a circus movement of the same type as in flutter, but at a slower rate, and it may be that they are the two extremes of a continuous series.

PAROXYSMAL FIBRILLATION

There is one fallacy which it is important to mention. Many people think that if fibrillation is well treated with digitalis it stops, but as a fact

it practically never does. It is true that the rate then becomes sufficiently regular for one not to notice it easily, but as soon as the effect of the digitalis wears off it again becomes completely irregular. But there are a proportion of attacks in which fibrillation is paroxysmal, and the rhythm returns to normal. They rarely last more than four days, so if a patient is fibrillating longer than this you can be fairly certain it will continue unless quinidine is used.

Recently Dr. John Parkinson and I collected 200 cases of paroxysmal fibrillation seen personally, in two-thirds of whom fibrillation was proved by graphic methods. In 70 per cent. there was structural heart disease, due in about equal proportions to rheumatism, high blood pressure or primary myocardial disease. Goitre was the cause in another 15 per cent., and no underlying heart disease was found in the remaining 15 per cent. The ætiology was, therefore, known in 85 per cent., though the provocative stimulus of the attack was obscure.

Paroxysms of fibrillation were found to fall into three main classes :—

1. Typical recurrent attacks, occurring frequently, or at long intervals. These were found in more than half of all the cases, and resembled in many ways simple paroxysmal tachycardia.

2. A short series of paroxysms occurring before fibrillations was established. These were about one-eighth of all the cases, and half of them had rheumatic valvular disease. In many patients in Class 1 also fibrillation ultimately became established, but often this had not happened after observation for many years'.

3. Very few paroxysms, generally only one, and often of longer duration ; " transient fibrillation " of some authors :—

(*a*) In the course of congestive heart failure ;
(*b*) After coronary thrombosis ;
(*c*) Associated with infections, etc., *e.g.*, pneumonia ;
(*d*) With no apparent cause.

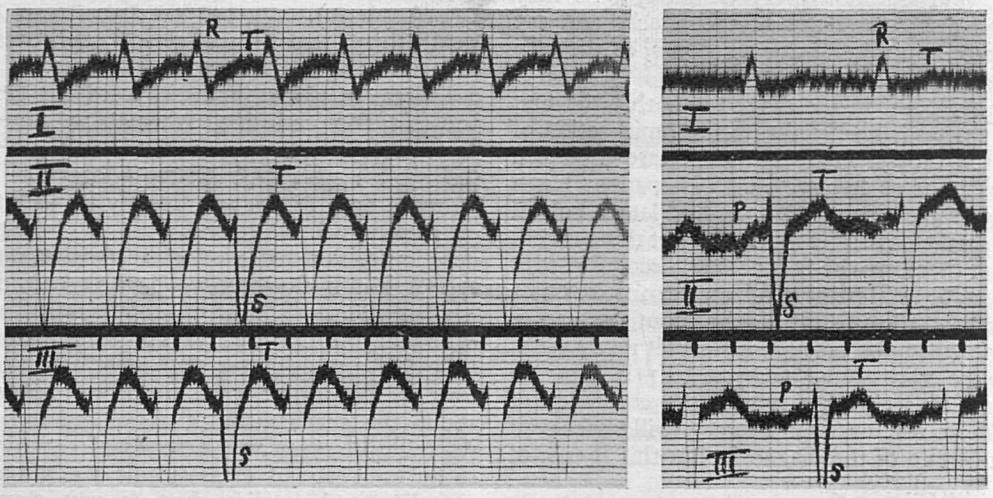

Fig. 1

(*a*) Auricular paroxysmal tachycardia in an elderly man with heart disease (rate 175). (*b*) Normal rhythm in the same patient (rate 86). The time marker in this and the other figures show fifths and twenty-fifths seconds.

Often symptoms were not very severe, perhaps no more than palpitation, breathlessness, and inability to continue at work. With a longer attack or where the heart was already in difficulties congestive failure was likely to develop. Syncope was rare and paroxysms were seldom associated with anginal pain unless both were due to coronary thrombosis. Between the attacks most patients were able to lead a normal life.

Our conclusions about the treatment and prognosis were as follows : When a paroxysm of fibrillation has lasted more than two or three hours, quinidine will often arrest the attack. Digitalis should not then be given ; if, however, quinidine is discarded as ineffective, digitalis should be used, and in large doses if failure supervenes. It will rarely be indicated unless an attack has lasted for days rather than for hours.

Between the attacks, when they recur often enough to require treatment, and when no remediable cause such as hyperthyroidism can be found, quinidine should be used. In the absence of contra-indications as much as 5 grains, three times a day, should be tried before it is stopped. If quinidine fails, and if general measures will not relieve the attacks, most patients would be well advised to bear with them; but should they become unbearable, digitalis must be given, for it may reduce their frequency. Even if it induces permanent fibrillation some patients find themselves better so. In some patients the presence of a goitre indicates operation, and our experience leaves us in no doubt about the success of this treatment.

(*d*) If the attacks recur every few weeks, or more often, they are apt to become more frequent without treatment, and it is probable, though never certain, that permanent fibrillation will ensue. In some patients, especially in those with rheumatic heart disease, this may happen within a few months after one or two attacks, but if it does not happen so soon it may be postponed for years. Rheumatic heart disease makes permanent fibrillation more likely. The absence of any underlying heart disease makes it much less likely.

PAROXYSMAL FLUTTER

Paroxysmal fibrillation is at least ten times as common as paroxysmal flutter. In half the cases of flutter the rate will be irregular, and in the other half it will be regular. In half the cases paroxysms of flutter will alternate with paroxysms of fibrillation, and as this is much less likely to happen with paroxysms of tachycardia, it will often help in the diagnosis.

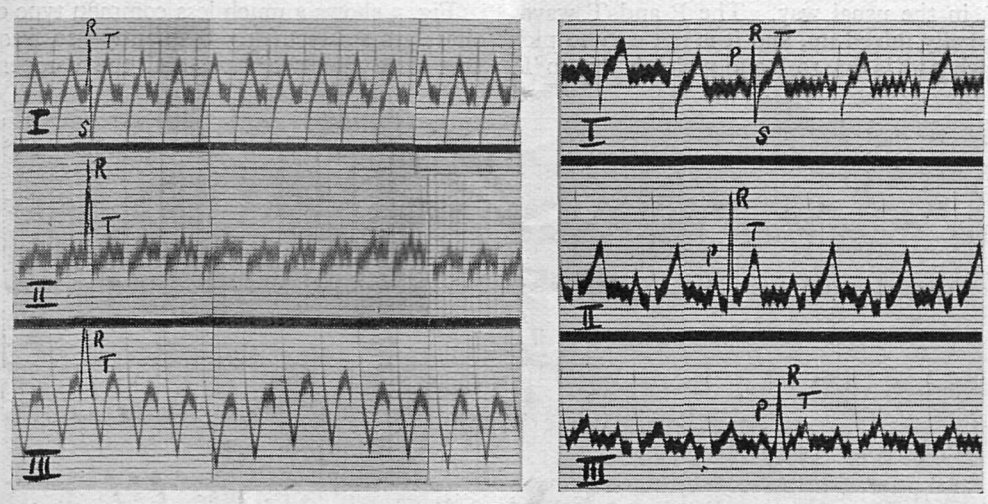

Fig. 2

(*a*) Auricular paroxysmal tachycardia in a young man with a healthy heart (rate 176). (*b*) Normal rhythm in the same patient (rate 78).

Our conclusions as regards prognosis were:

(*a*) For the immediate attack the outlook is excellent, as it will seldom persist more than two days. But if it lasts four days permanent fibrillation becomes much more likely, and after two weeks almost certain.

(*b*) If a long interval of freedom follows the first few attacks, the prospect for the future is good, as they may not recur for years, or not at all, especially when there is nothing else pointing to heart disease.

(*c*) If there are only occasional attacks in the course of a year, the liability to any increase in the frequency is small; but unless some effective treatment can be found they will continue as before, and as the years go by some patients will get them more frequently.

But there remain about one-quarter of the attacks when there is regular 2 : 1 heart-block with a heart rate of 120 to 180, when the diagnosis between flutter and paroxysmal tachycardia is difficult. If vagal pressure slows the heart rate without stopping the attack, it will be evidence in favour of flutter. If digitalis makes the heart irregular or halves the rate by increasing the degree of heart-block, it will prove it to be flutter. Before this, flutter may be suspected if there is serious heart disease, or if congestive failure follows quickly after the attack has started. In cases of

doubt it is better to treat the attack as flutter and give digitalis in full doses; this will probably have no effect on paroxysmal tachycardia, and should reduce the rate of flutter. If the attack persists for ten days, it is almost certainly flutter, and is not then likely to stop spontaneously. Digitalis should be given by the special method, and if this fails and there are no contra-indications quinidine should be used.

PAROXYSMAL TACHYCARDIA

Figs. 1 to 4 give examples of these different attacks. In the commonest auricular type and also in the nodal type the ventricular complexes are the same in the attack as normally, because the formation of the impulse takes place in the auricle and goes down the auriculo-ventricular bundle, in the usual way. The P and T waves are generally mixed up, and it is not easy to pick out which part is due to P and which is due to T.

Fig. 2 shows an attack in a man, aged 22, with no history or signs suggestive of heart disease. One day when playing chess he felt his heart start racing at a very rapid rate. It came on quite suddenly and, though he was very uncomfortable and distressed and looked ashy grey, he was able to walk about. When I saw him twenty minutes later the heart rate was 176, but no other abnormality could be found. Pressure on the vagus nerve was without effect, but as soon as he was told to take a deep breath and hold it as long as possible the attack stopped, and the rate dropped at once to 100, and later to 78. That was five years ago, and he has not had another attack. In both these cases the EC. shows the ventricular complexes substantially the same in and out of these attacks, as the ectopic beat has started in the auricle.

Fig. 3 shows a much less common type of very short attacks recurring frequently—so frequently that with the two rates and the compensatory

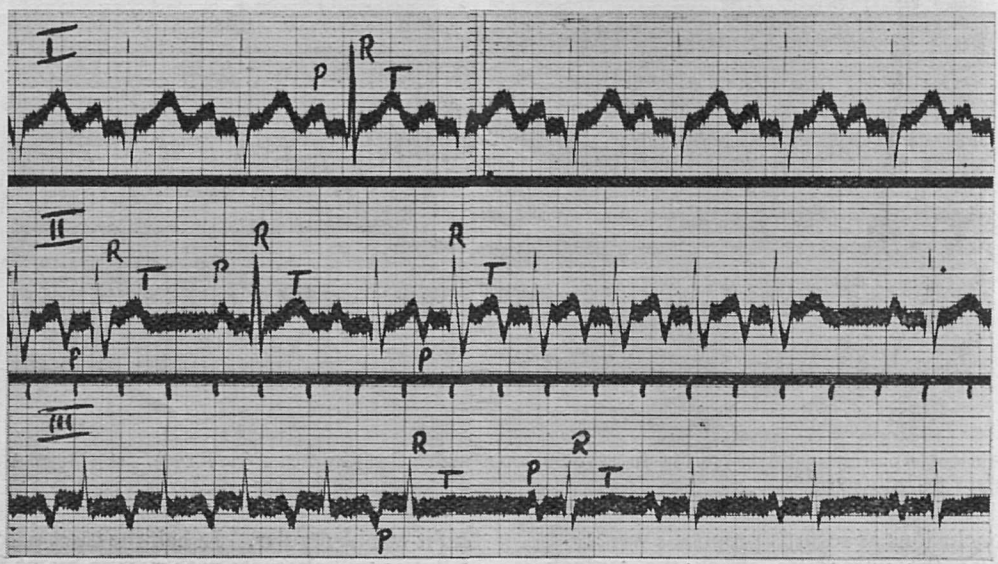

Fig. 3

Short attacks of paroxysmal tachycardia in a boy with no other evidence of heart disease. The ectopic impulse arises nearer the A.-V. node than the S.A. node, as shown by the inverted P wave (rate of attack, 166; in between attacks, 114). Lead I normal rhythm; Lead II, one complete attack and the end of another, both showing fully compensatory pause; Lead III, showing the end of an attack (*see* text).

Fig. 1 shows an attack in a man, aged 64. It started while he was waiting for an electro-cardiogram and produced few symptoms. He had myocardial disease and arterioscleriosis, and fibrillation had been changed back to normal rhythm with quinidine a few weeks before. The attack stopped spontaneously after twenty minutes, and did not recur. Fibrillation returned two years later and he died four years later. The rate in the attack was 175 and fell to 84 a few minutes afterwards.

pause after the attacks it was difficult clinically to exclude fibrillation. The subject was a boy, aged 8, with no other evidence of heart disease, and during the time he was observed in hospital it was rare for either rhythm to persist for more than a minute without a change. Since then the attacks have become rather less frequent, possibly as the result of treatment for a chronic otitis media. The inverted P waves and the fully compensatory pause after the attacks show that the impulse arises nearer the A.-V. than the S.-A. node, but

the length of the P-R interval shows that it is not actually in the A.-V. node.

Fig. 4 shows ventricular paroxysmal tachycardia. The ventricular complexes are much wider, and though they are not of the usual shape of ventricular extra-systoles, one which was recorded before the attack was of just the same shape.

A man, aged 21, who had always been healthy and able to do hard work, was seen after he had had two long attacks, one and five months previously. His heart rate then was 72 and regular, except for frequent extra-systoles. There were no physical signs except slight enlargement of the heart. The blood pressure was 120/85. His EC. showed low voltage ventricular complexes with rather flat T waves in all leads and ventricular extra-systoles of two different types. He was told to return should he have another attack. Soon after leaving hospital he felt his heart starting off again and things went black, but he managed to walk part of the way back; his attack then stopped, so he returned home.

About six hours later it started again, with vomiting, and he was admitted to hospital next day. The heart rate was 220, the pulse was difficult to count, but appeared half this rate with the blood pressure under 100. He was feeling sick and was rather drowsy. Already the heart appeared to have dilated, and there were some congestion and enlargement of the liver. Vagal pressure and similar methods failed to stop his attack. An injection of 1/200th gr. strophanthin was given without effect. This and digitalis had been found ineffective in his previous attacks. When the attack continued he was started on quinidine. On the second day he took 5 gr. once, the same dose twice on the third day, three times on the fourth day and four times on the fifth day at two-hourly intervals. That evening the attack came to an end, the rate dropping suddenly to about 80. He said that during the evening he had noticed it getting slower before the final drop. Observations showed a drop in rate from the original 220 to 194, probably as a result of quinidine. Even after the first night of this attack he had developed signs of congestive failure. The nausea continued and he was rather drowsy, though could never be described as even semi-conscious.

He now—a few days later—seems well, but his outlook is not as good as in most cases of paroxysmal tachycardia, because the attacks are of the ventricular type, and last for several days at a fast rate.

Fig. 5 shows a paroxysm of auricular flutter generally with a regular ventricular rate of 160 (the auricular rate being 320), but occasionally, as in Lead 1, with 3 : 1 block, producing a slight irregularity. He was a man aged 38, admitted with hemiplegia due to cerebral hæmorrhage from high blood pressure, 250/140. He had made a fairly good recovery when—unwisely, I think—he had some teeth extracted. Six hours later his pulse, which had been 90, went up to 160, and remained at that level for two days, dropping

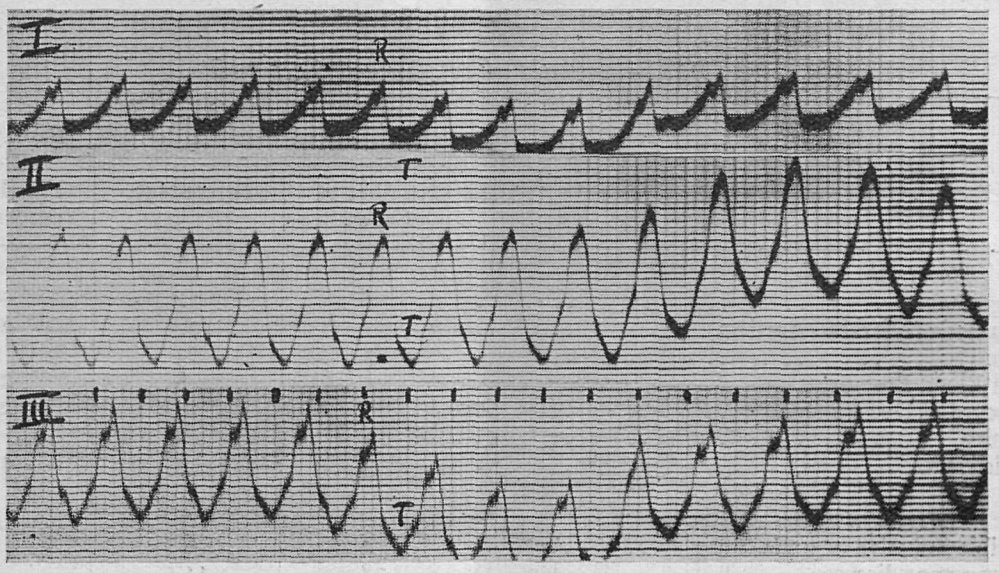

Fig. 4
Ventricular paroxysmal tachycardia in a young man (rate 218) (*see* text).

suddenly again to its usual rate. That particular attack was not in itself serious, though attacks of flutter often are. But the blood pressure remained high, and he died from another cerebral hæmorrhage six months later.

from a series of 63 patients, most of whom I have seen over a considerable time. In going through them I was surprised to find that there were about half with normal hearts. To the criticism that they had heart disease which was not detected,

Fig. 5

Paroxysmal auricular flutter in a man with high blood pressure (rate 164). The small T waves make it relatively easy to pick out the P waves. Almost always there was regular 2 : 1 heart-block, but one longer interval in Lead I shows 3 : 1 heart-block and makes the diagnosis of flutter certain.

ÆTIOLOGY AND AGE INCIDENCE

What type of patient is liable to suffer from attacks of paroxysmal tachycardia? The answer is a very wide one. The figures in Table I are the best answer is that some of them have had their paroxysms for 40 years, and that if in that time it has not led to evident heart disease it cannot be very much.

TABLE I

Heart Disease associated with Paroxysmal Tachycardia.

	Paroxysmal Tachycardia.		Paroxysmal Auricular Fibrillation (percentage).
	Number of Cases.	Percentage.	
Heart Disease—			
Congenital	1	1.5	—
Rheumatic (Mitral 8, Aortic 3)	11	17.5	22
Syphilitic	2	3	2.5
High Blood Pressure	5	8	24
Myocardial Disease alone	7	11	22.5
Obesity	2	3	—
Toxic Goitre	3	5	14
No Evident Heart Disease—			
Possible infective or toxic cause	4	6.5	6
No apparent disease	28	44.5	9
Total number of cases	63	—	200

The corresponding figures for paroxysmal fibrillation have been added. They are very different, as only 15 per cent. are without heart disease or toxic goitre. The rheumatic figures are about the same, but high blood pressure, myocardial disease, and goitre are much less common causes of paroxysmal tachycardia.

The other question is that of age. It may occur at any age, but it is not very common in small children. Though many cases are seen in older people, it does not often start in later life. Nearly 70 per cent. of the cases start between the ages of 20 to 50.

and in a patient nearing congestive failure an attack of slow paroxysmal tachycardia may be the last straw and may lead to immediate danger, but there it is the heart condition rather than the paroxysm which makes the danger. If the heart is sound, or if the degree of damage is only slight, the outlook in the immediate attack is excellent. The rate most common in the attack is 160 to 200, or if you want a range which includes 70 per cent. of the cases, 160 to 220. But occasionally there will be an attack as slow as 120, or as fast as 240, so you must remember the possibility of a case having these outside rates. There were three

TABLE II

Age of Onset of Attacks.

63 cases : 34 males, 29 females.

Age of onset	0-5	6-9	10-19	20-29	30-39	40-49	50-59	60 & over
Number of cases	2	3	8	15	20	8	4	3

Age of onset	Before 20	20-49	After 50
Percentage of cases	8	68	24

THE COURSE OF AN ATTACK

In the attack itself, I have emphasised that the first symptom is generally palpitation and the feeling that the heart is beating rapidly. How much the patient notices afterwards depends on what the rate is and how sound the heart is in other ways. A rate of 160 rarely produces serious symptoms unless it has been going on a long time, or unless the heart is already in difficulties. But a rate of 200 or over produces disability fairly quickly. Even so, anyone seeing these attacks in patients with a sound heart is surprised at the small disability there is from a rate up to 220 considering how very ill the ordinary patient with heart disease may be with a rate of 180 or less. Other symptoms are the pain and discomfort over the heart, and the feeling of faintness and giddiness, sometimes nausea or actual vomiting. Often the patient passes large quantities of urine, of low specific gravity, after the attack.

The disability, as well as depending on the rate, depends on how much the heart is affected already, attacks in this series at rates above 240, but their exact nature is more doubtful. One or two were probably flutter, with no heart block and a rapid ventricular rate; one with a rate of 270 was certainly not, as the auricular complexes could be seen at the slow rate of 64. Two of these three were in children under two years old, in whom atypical attacks with a serious prognosis are liable to occur. The rates in these attacks are given in Table III.

At 120 or 130 it is very difficult to diagnose, because there are more causes of tachycardia at that rate. But with other forms of tachycardia the rate should vary with exercise and rest and with nervous stimuli, and in paroxysmal tachycardia it remains very constant, usually not varying more than four or five beats in any short period of time. But sometimes in the case of patients having attacks lasting over days there may be a rather greater change of rate.

Fig. 6 is the chart of a man in a typical attack. He came in on the fourth day, and on the tenth

TABLE III

Heart Rate during Attacks.

Rate	120-139	140-149	150-159	160-169	170-179
Number of cases	2	3	3	5	9

Rate	180-189	190-199	200-209	210-219	220-239	Above 240
Number of cases	6	4	3	4	4	3

day the rate came down absolutely suddenly from 180 to 100, and then went to normal. Here is a patient who had had many such attacks, which had all lasted days rather than hours, and he had congestive failure and seemed dangerously ill; the slower rates towards the end were probably the result of quinidine treatment. However ill the patient may seem, the attack does generally stop before there is a fatal result. Of the 63 patients I have spoken of, only one died during an attack of paroxysmal tachycardia, and he was one of the young patients with attacks of the ventricular type of unusual length; he was 15 when he died, and the attacks had started three years before.

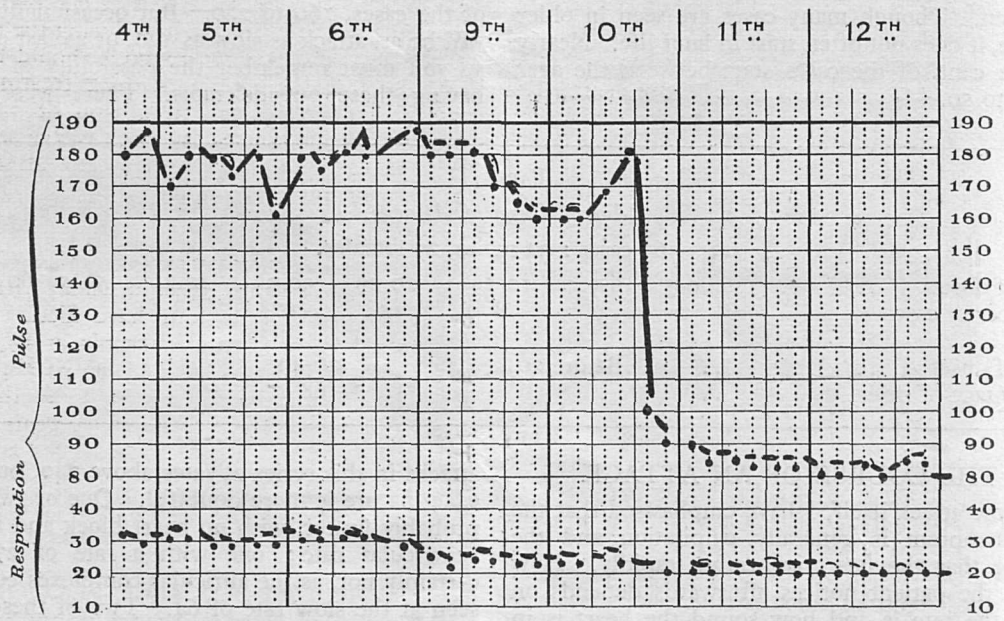

Fig. 6

Chart of the pulse and respiration rate in a man with paroxysmal tachycardia. Admitted to hospital on the fourth day of the attack, quinidine was given after the sixth day, and the attack stopped on the tenth day soon after his last dose of quinidine. (The dosage was: Sixth day, 10 gr.; seventh day, 15 gr.; eighth day, 20 gr.; ninth day, 25 gr.; tenth day, 30 gr.) The rate was generally charted between 176 and 188 until the last two days, when it was becoming slower under the influence of quinidine.

THE DURATION OF THE ATTACK

This is another factor which is important from the prognostic point of view, so that you can make a subdivision which is very useful clinically. Attacks may last minutes, or hours, or days. If the duration is only minutes, you are not likely to be troubled about them; it is a slight fluttering which the patient is aware of, but for which he does not seek advice. Short attacks are very much more common than those which last for days. If you look through the hospital records you will not get the impression that paroxysmal tachycardia is very common, because most of the attacks which call for admission to hospital last for several days. Shorter attacks are common, so that I have seen five students here in the last five years with paroxysms. None of them had any other evidence of heart disease. Why the length of the attack makes such a useful distinction is, that even if the heart is sound a rapid rate becomes a considerable strain after a few days. The period during which most hearts can stand this rapid rate without serious symptoms is two or three days. During the first day or so of the rapid rate the symptoms are often not much more severe than in the first few hours. But after two or three days there are more likely to be signs of congestive failure, cyanosis, swelling of the liver and œdema of the feet. If the heart is diseased or the rate is very rapid, those results may supervene sooner. It is generally the case in which the attack lasts several days that has definite dangers of its own.

TABLE IV

Length of attacks.

Seconds	2
½ hour	12
1-6 hours	26
7-12 hours	10
18 hours	1
Less than 24 hours	51

24 hours	3
2 days	2
3 days	3
4-6 days	2
10 days or longer	2
More than 1 day	12

In general, it is true that the attacks of a given patient tend to be of a particular length; the length may be minutes, or hours, or days; 51 out of 63 cases had attacks generally lasting less than a day, and 12 had attacks lasting for a longer period. It is not often, however, that the attack lasts longer than four days, and, as I have said, if they last longer they are a serious factor apart from anything else.

The remaining two questions I have to touch on are those of treatment and prognosis.

TREATMENT IN THE ATTACK

This is very varied, and you may take it that when a variety of treatments are suggested for any condition there is no one treatment which is strikingly effective. Many patients have discovered for themselves that some particular movement, or the adoption of a particular posture, will tend to stop the attacks; vagal pressure, or forced expiration, or pressure on the eyeballs may bring an attack to an end. Still, it is more likely that these manœuvres will not stop the attack. And when you are trying them, do not give the patient the impression that you have a certain method of stopping an attack, otherwise there will be great alarm when the method fails, and the condition is apt to be regarded by him as more serious than it is.

If these general methods fail, you try drugs, but these are not certain. Some few attacks have stopped immediately after the giving of digitalis and strophanthin, more have stopped after giving quinidine. Both those may be worth trying. Many of the attacks will run out to their own end, whatever treatment you may adopt. Your treatment should not be too vigorous in this direction unless the attack goes on for days; then you should give increasing doses of quinidine to try to stop it, provided there are no contra-indications to its use. One doctor was very convinced that if he stopped his attacks by adopting a particular posture the next attack came on sooner than usual, and, after observation of his case for some time, concluded it was better to let the attack wear itself out, as it were, for then he enjoyed a longer period of immunity.

TREATMENT BETWEEN ATTACKS

Do not give drugs unless the attacks are very frequent. More often some change in the patient's life—it may be in the direction of taking more exercise, or less, or it may be in getting down the weight, or in dealing with indigestion—will have a good effect in reducing the number of attacks. If they persist in spite of such general treatment, you may find that either digitalis or quinidine will be effective in reducing the number of attacks. But general methods should be tried first, because the effects of drug treatment are not certain. And, as a rule, you do not cure paroxysmal tachycardia in the sense of stopping the attacks; you merely make the attacks less frequent or more endurable.

PROGNOSIS

Of these 63 patients, most of whom I have seen over some time, only four have died. One of those died of lymphatic leukæmia at 69, having had paroxysmal tachycardia for 60 years; one of auricular fibrillation (*see* Fig. 1); another died after removal of his prostate at 75 years of age, having had paroxysmal tachycardia for 20 years; and there was the boy I have spoken of, one of whose attacks was fatal—the only patient who has so far died in an attack.

TABLE V

Length of time during which attacks have occurred.

Of recent onset only	24
2-4 years	9
5-9 years	8
10-14 years	8
15-19 years	5
20-39 years	6
More than 40 years	3

Table V shows the length of time during which these patients have already suffered from attacks. It shows, of course, minimal figures, because many of them have been seen soon after the onset. Sometimes the gaps have been long, and sometimes they have almost disappeared with treatment.

So, in a general way, you can be reassuring to the patient as to the outlook on life, and if the attacks are frequent you can generally make them less frequent, though, as a rule, you are not able to abolish them entirely. And there is always the chance that the patient may, as it is called, "grow out of them," or that some definite exciting cause may be found. It is more likely that the attacks will persist, but will become less frequent and will cause less symptoms after treatment.

You cannot speak of the prognosis of paroxysmal tachycardia without reference to the heart condition with which it is associated. If the heart disease is itself serious, especially if there is congestive failure, paroxysmal tachycardia adds to the gravity of the prognosis. If the heart disease is slighter, *e.g.*, compensated mitral stenosis or early high blood pressure, the prognosis is that of the heart condition itself, and the attacks are a troublesome rather than a serious addition.

If the heart disease is slight, or if there is no evidence of heart disease, the prognosis is excellent, with the following exceptions. Attacks in infants and small children are more dangerous; long attacks and unusually rapid attacks are then more frequent, though some of the ordinary mild attacks start early. Ventricular paroxysmal tachycardia is more dangerous in itself and more likely to be associated with serious heart disease. Attacks which last more than four days are not entirely without danger, and such patients are liable to have even longer and more serious attacks. The attacks with a more rapid rate, *i.e.*, above 200, are more serious, and this is sometimes associated with greater length of attack. These last two factors may suggest ventricular paroxysmal tachycardia or flutter, which are in themselves more serious.

So from the point of view of treatment and prognosis we see that it is important not only to diagnose paroxysmal tachycardia, but to know the exact variety with which we are dealing.

The Effect of Diet, Drinks and Drugs on the Renal Excretion

Presidential Address by R. D. Mothersol, Esq., M.D., M.S.(Lond.), F.R.C.S.(Eng.), at the Annual Meeting at Bolton of the Lancashire & Cheshire Branch of the British Medical Association, on June 22nd, 1932

LADIES and GENTLEMEN,—First let me thank you for the honour you have done me in making me President of the Lancashire and Cheshire Branch of the British Medical Association, and assure you that I will do my best to follow the worthy example of my predecessors.

The first duty of the new President is to give a presidential address, and, like other Presidents, I have had some difficulty in choosing a suitable subject. Last year, Dr. Mainwaring White, whose death during his year of office we must all deeply deplore, gave us a very interesting and learned address entitled, "Retrospective, Introspective and Prospective," and the year before Mr. F. G. Ralphs gave us a brilliant essay on "Some Points of View." This year I have chosen a medical subject. I am aware that, as a general practitioner with a surgical bias, I lay myself open to criticism by addressing on a medical subject an audience which may include medical specialists. It has been said that a specialist is one who knows more and more about less and less, while a general practitioner knows less and less about more and more, and the criticism is partly true. But I maintain that every general practitioner ought to specialise in some branch of the profession, if only a minor one. An ancient proverb says that any man who attains the age of 40 must be either a fool or a physician. And if this is true of the average layman, it must apply still more strongly to one who has been engaged in general practice for 40 years. Moreover, I have two good reasons for choosing this subject: one is that it has been of special interest to me for many years, the other is that it gives me an opportunity to acknowledge a long-standing debt. My interest dates from the time when I was a medical ward clerk at Guy's under Dr. Pye-Smith. I had under my care a man with what was called "rheumatic gout" of one wrist; I have no doubt it was genuine gout. He was on milk diet, and I examined his urine daily under the microscope, and found crystals of uric acid. One day he was put on fish diet, and next day, to my surprise, I could find no uric acid crystals. Why should the change of diet have this effect? I have only recently found what I believe to be the answer to that question, and will deal with the point later on.

The long-standing debt is one which I owe to the late Dr. Alexander Haig for his work on "Uric Acid and its Relation to Disease." I am aware that it is the fashion nowadays to belittle Dr. Haig's opinions. But I believe that his teaching has been of more value to me, both in the treatment of my patients and in the preservation of my own health, than that of any other physician alive or dead. Dr. Haig died in April, 1924, and his brief obituary notice in the *British Medical Journal* damns him with faint praise. It contains two grave errors: one in saying that "he became convinced that excessive uric acid was the clue to the pathology and treatment of many functional disorders," whereas Haig maintained that many organic diseases were also due, or partly due, to the same cause. The other consisted in

saying that " he believed that in the diet of civilised man there was commonly an excess of protein." It was not the amount of protein which Haig considered harmful, but the presence of purin bodies in the food. In the seventh edition of his book on Uric Acid he mentions the terrible effects from which he suffered through trying to live on a diet which did not contain sufficient proteins.

Haig's theory forms for me a framework into which many apparently unconnected phenomena fit with the neatness and accuracy of a jig-saw puzzle. But I have not found his name mentioned in any book on Medicine. Now what was Haig's theory? I will give it in brief.

1. That urea and uric acid are formed in the body from the breaking up of proteins in the ratio of 35 of urea to 1 of uric acid.

2. That when uric acid does not exceed that ratio in the blood it causes no morbid or unpleasant effects.

3. That when uric acid is found in a higher proportion than 1 in 35 it is the result of purin bodies having been taken in food or drink, or because it has been stored up in the liver or other organs and subsequently released.

4. That uric acid may cause disease or some of the symptoms of disease either when there is an excess of it passing through the blood, or when it has been precipitated into certain tissues or organs.

Having summarised Haig's views for the benefit of those who are unacquainted with his writings, I will now deal with the subject of my address, but I shall have to refer to his opinions again. Naturally, I do not agree with all of Haig's views, but I am absolutely convinced of the truth of what I have designated as Haig's theory.

There are five chief points which have to be considered in regard to the normal renal excretion, viz., quantity, specific gravity, urea, uric acid and reaction. Some of these factors vary in inverse, others in direct, ratio. Thus the greater the quantity the lower will be the specific gravity, and if the acidity is greater there will generally be more urea and less uric acid.

1. *Quantity*.—The quantity of urine mainly depends on the amount of fluid taken in and the amount of fluid lost in other ways—chiefly by perspiration. I should not have thought this point worth mention, but in conversation with an eminent doctor the other day I found that he was unaware that the external temperature had any effect on the amount of the urine.

2. *Specific Gravity*.—Most insurance companies appear to attach considerable importance to the specific gravity. But it is possible for a healthy individual to pass two samples within 24 hours, one of specific gravity of 1001 and the other of 1030.

3. *Urea*.—In health the excretion of urea depends upon the amount of protein assimilated.

4. *Uric Acid*.—The amount of uric acid excreted in the urine depends mainly on the reaction of the fluid. Most individuals who live on a mixed diet and only take a moderate amount of exercise have a fair amount of uric acid stored up in the liver and other organs, and any increase of the alkalinity of the blood brings some of this into solution, to be excreted by the kidneys. More uric acid is excreted during the alkaline tide of the morning hours than in the afternoon and the first part of the night.

5. *Reaction*.—At one time, I believe, most insurance companies required to know the reaction of the proposer's urine, now most of them ignore it. It is true that the reaction of a single specimen of urine is of very little value, unless we know the circumstances under which it was passed. I estimate that the amount of acid excreted in the urine of a healthy adult in 24 hours is equal to about a drachm of strong hydrochloric acid. Where does this acid come from? Some is said to be derived from the breaking up of proteins. Some is the result of muscular exertion. Some is the result of the oxidation which maintains the body heat. A certain amount may come from drinking acid fluids such as beer or wines. But I venture to suggest that the main source of urinary acidity is the hydrochloric acid secreted by the stomach in the process of digestion. Such observations as I have been able to make support this view.

Digestion undoubtedly increases the amount of acid in the urine. The total acidity between 9 a.m. and 1 p.m. after eating a moderate breakfast is about double the amount excreted when only water has been taken, other conditions being equal. The alkaline tide in the urine in the early morning hours described by the late Sir William Roberts appears to be due to the length of time since the last meal. If meals are taken during the night instead of in the daytime, the alkaline tide comes on in the late afternoon or evening. This alkaline tide, in those who have accumulated uric acid, accounts for their craving for an early morning cup of tea, and for the fact that most people are at their worst before breakfast.

Another important factor which influences the acidity of the urine is the temperature to which the body is exposed; cold increases acidity, heat reduces it. Sir Alfred Garrod, Dr. Haig and others believed that the reduction of acidity was due to a large amount of acid being lost in the sweat. But other authorities say that sweat is

neutral. So far as my own observations go, the sweat after bodily exertion is slightly acid, that due to exposure to heat without exertion is neutral or faintly alkaline. But there is no doubt that sweating causes a great reduction of acidity. I must mention here that by acidity is meant the amount of acid excreted in a given time. The small quantity of urine passed after sweating may be more acid bulk for bulk, but the total amount of acid excreted will be much diminished.

The importance of the urinary acidity lies in the fact that the acid excreted must have reached the urine by way of the blood, so that if the amount of acid is large, the alkalinity of the blood will have been reduced, causing uric acid, which would otherwise have been excreted, to be stored up in various organs and tissues.

Now let us consider how diet, drinks and drugs affect the urine as to uric acid and acidity.

As to diet we may consider three chief groups of foodstuffs in this respect, viz. :—

1. Those which contain a considerable amount of purin bodies, chiefly animal food and the pulses.
2. Those which are practically free from purin bodies, such as white bread, milk, cheese, etc.
3. Various vegetables.

Now it is a matter of common observation that the foods in group 1 have a much more stimulating effect upon the stomach and its hormones than those in the other groups, and, though they bring uric acid equivalents into the body, the increased output of hydrochloric acid causes these to be deposited in the liver, so that the immediate effect on the urine is more acidity and less uric acid. This explains why my gouty patient ceased to show uric acid crystals in his urine when he was put on fish diet. Group 2 cause less acidity, but introduce no uric acid, and group 3 increase the alkalinity of the blood, and so may increase the uric acid in the urine.

An interesting experiment in dieting is recorded in the Old Testament, in the Book of Daniel, where it states that the Jewish captives, who lived on pulse and drank water, were fairer and fatter in flesh than those who fed on meat and drank wine from the king's table. This might be regarded as a testimonial to a purin-free diet, but, unfortunately, the pulses contain purin bodies, according to Haig sometimes nearly twice as much as meat.

Drinks may also be divided into three groups :—

1. Acid drinks, such as wine, beer, cider, etc.
2. Alkaloidal drinks, tea, coffee, cocoa, etc.
3. Neutral drinks, water or barley-water.

Here group 1 increase the acidity of the urine, group 2 also appear to increase acidity, and, though they introduce uric acid equivalents, they keep uric acid out of the urine. Group 3 have no effect on acidity, but probably favour the solubility of uric acid. Groups 1 and 2 are usually known as refreshing drinks, and owe their refreshing character to their clearing uric acid out of the blood. Sir A. Garrod says that wines may bring on gout before leaving the dinner-table, and a good many people suffer from slight pains in the joints almost immediately after drinking Burgundy.

Drugs there are almost without number, but we need only consider a few principal groups :—

1. Metals and their salts.
2. Acids.
3. Alkalies.
4. Salicylic compounds.
5. Alkaloids.
6. Certain coal-tar derivatives, phenacetin, antipyrin, etc.

Groups 1, 2, 5 and 6 tend to increase acidity and cause uric acid to be retained in the body.

Groups 3 and 4 are solvents of uric acid and increase elimination. Ammonia and its compounds, however, tend to increase acidity.

A large number of drugs or combinations of drugs are called tonics, and nearly all of these act by stimulating the gastric secretion or clearing the blood of uric acid in some other way. Thus we find the statement " in minute doses arsenic is a gastric stimulant, increasing the flow of gastric juice." No doubt all tonics owe a good deal to their psychological effect. It is noteworthy that all the drugs, the taking of which grows into a habit, such as cocaine, morphia, heroin and arsenic, have the effect of temporarily freeing the blood from excess of uric acid.

Here let me mention a few facts ignorance of which may cause disappointment. Salicylic compounds, sweating and alkalies are all useful as solvents of uric acid ; but if you combine either sweating or alkalies with the salicylates you diminish or nullify the effect of the latter. Small doses of alkalies may cause collæmia with various unpleasant symptoms, when larger doses dissolve the uric acid and relieve collæmia. Lithium urate is very soluble in a test-tube, but if taken by the mouth lithia forms a nearly insoluble triple phosphate with phosphate of soda and ammonia, and so lessens the elimination of uric acid.

If I have not wearied you too much already, I should like to apply the principles which I have been discussing to a few concrete cases, viz., the treatment of anæmia and gout, and the relation of the night before to the morning after. The history of the treatment of anæmia is interesting and suggestive. Forty odd years ago the treatment for anæmia was iron, red meat and red wine, and we were told that if the patient's stomach could

stand them the stronger preparations of iron were the most effective. Now the strongest preparation of iron was the perchloride which contains a large amount of free hydrochloric acid. At the beginning of this century Haig treated his anæmias successfully by freeing the blood from uric acid by alternating acids with salicylates, and prevented relapses by a purin-free diet. In Stockholm, since 1913, it has been the practice to treat patients with pernicious anæmia with large amounts of meat in addition to arsenic and dilute hydrochloric acid. Now we use liver extract or ventriculin. But I find it stated that cooked kidney acts as well as liver, and that it is essential to give hydrochloric acid as well because achlorhydria always exists in these cases. In a series of cases of pernicious anæmia (*B.M.J.*, May 7th, 1932) examined with test meals, 95 out of 96 were found to have achylia gastrica, the remaining case showed free hydrochloric acid. It is remarkable how prominent hydrochloric acid is throughout the treatment of anæmia. Liver extract and ventriculin probably act by increasing the formation of pyloric hormones which stimulate the gastric cells to secrete more acid. It is tempting to suggest that the primary cause of pernicious anæmia is deficient secretion of HCl by the stomach. The deficiency causes uricacidæmia, which still further impairs the gastric secretion, and so on in a vicious circle. I am sorry I have not been able to get a case of pernicious anæmia to apply the crucial acid test to this theory, viz.: "Do liver extract and ventriculin cure pernicious anæmia, if no hydrochloric acid is given and none is formed in the stomach?" It is significant that in a series of 98 gastric operations (*B.M.J.*, May 7th, 1892) two-thirds of them were followed by some degree of non-hæmorrhagic anæmia, probably due to hypochlorhydria caused by the operation.

I believe that the amount of hydrochloric acid secreted by the stomach is important not only as regards gastric digestion, but also for the part it plays in regulating the hydrogen-ion concentration of the blood and the retention or excretion of uric acid.

The subject of gout has been of special interest to me since I began to suffer from acute gout some 40 years ago, and but for the help of Haig I should probably not be alive now. That reminds me of a little story which, if not altogether *a propos*, has the merit of being true. One day in the Bolton Workhouse I encountered an old lady who had been one of my out-patients at the Infirmary some years before. I asked after her health, and she replied: "Ah, doctor, if only I'd taken your medicine I shouldn't be here now."

Why did I get gout so early in life? It was not because of heredity; the only part inheritance plays in gout is providing a healthy stomach and sufficient means to satisfy the appetite for stimulating food and drinks without having to sweat at manual labour. I laid the foundation for it when, for two years at the Liverpool Northern Hospital, I took animal food three times a day, drank nothing but tea and coffee with an occasional glass of wine or beer, and had little time for outdoor exercise. One could hardly contrive a better regimen for storing up uric acid in the body.

Since I studied Haig I have regarded gout as a voluntary disease which anyone with a good digestion and plenty of money may have if he likes or avoid if he choses, according to his mode of living. Some of the treatment recommended for gout seems almost as futile as the stout lady who hopes to slim by using somebody's bath-salts, instead of curbing her appetite; some is as cumbrous and extravagant as burning down one's house in order to dine off roast pork; and some is positively dangerous.

Those who follow Haig's teaching need not run the risk of poisoning their patients with colchicum or atophan. About the beginning of last century a certain lord offered £500 to anyone who would give him back his gout. He had probably been "cured" of his gout by ruining his digestion with colchicum, and was in a wretched state of chronic alkalosis and uricacidæmia. It is quite likely that he had pernicious anæmia. Recently I observed a doctor who was supposed to be dieting for gout partaking freely of salt kippered herring, which, according to Haig, contains about six times as much purins as the same weight of beef or mutton.

About 1886, Dr. Robson Roose, of London, acquired renown and patients by allowing his gouty clients an occasional glass of port. Most followers of Haig will agree that, so far as gout is concerned, there is less harm in a bottle of vintage port than in a strong cup of tea or coffee. In Horace Walpole's letters we find that, whenever he had an attack of gout, he attributed it to tea and stopped taking it.

Let us now for a moment consider the morning after in its relation to the night before. You enjoy a good dinner with a healthy appetite, the gastric hormones excite a free flow of HCl, which, with the acid wines and the after-dinner coffee, clears your blood of uric acid and drives it into the liver or spleen. Your blood-pressure is lowered, your circulation is free, and if the alcohol has not been excessive, your mind is clear and

your ideas are brilliant. To use a mixed metaphor, your fires burn brightly with a clear flame, the hearth is clean, and everything in the garden is lovely. But alas, some indiscretion in food or drink upsets the long-suffering stomach, causing nausea, perhaps vomiting. The flow of hydrochloric acid ceases, the alkaline tide of the early morning hours rises to an unusual height, and the blood is flooded with uric acid. The circulation is poor owing to collæmia, the blood-pressure rises, there is headache and mental depression. To continue the simile, the fire burns badly with much smoke, the flues are choked with soot, and the garden looks like the end of November. It may seem strange, but it is true, that a few grains more of uric acid circulating in the blood may make all the difference between merriness and misery

You may think some of the things I have mentioned trivial, but a straw will show which way the wind is blowing.

Some of you may ask, "Why have we never heard of Haig before? Why is his theory never mentioned in the text-books?" I will answer you in the Scottish manner with another question: "Why did certain surgeons in certain hospitals 50 years ago fight to the last ditch against Lister's antiseptic treatment?" The answer to both is, "Prejudice!" That is, judgment without due examination. But the value of the antiseptic treatment of wounds is a clear and simple issue, the truth of which can easily be demonstrated, while the relation of uric acid to disease is a complex problem, full of pitfalls and apparent paradoxes which lead many astray.

I thank you, ladies and gentlemen, for the patience with which you have listened to me. I hope I have convinced most of you that Haig's views deserve serious consideration, and if I succeed in persuading a few of you to read his writings with care and without prejudice I shall feel that our time has not been wasted.

Hospital Information, etc.

Pass List

OXFORD UNIVERSITY.

July, 1932.

M.B.

W. H. Greany — R. H. Bolton

LONDON UNIVERSITY.

July, 1932.

THIRD (B.D.S.) EXAMINATION IN DENTAL SURGERY.

A. E. Fisher — G. B. Hunter

*H. B. Smith

* Group I only.

Appointment

E. A. Leviseur, M.B., B.S., Honorary Visiting Physician, Pretoria Hospital.

Papers by Guy's Men

H. W. Barber. Sceleroderma with atrophy of subcutaneous tissue and muscle. *Proc. R.S.M.*, 1932, xxv, 1545.

N. Burgess. Pityriasis lichenoides acuta. *Proc. R.S.M.*, 1932, xxv, 1546.

Sir E. G. Little. (1) ? Lichen planus of scalp; (2) Erythema ab igne in unusual position; (3) Lymphogranulomatosis. *Proc. R.S.M.*, 1932, xxv, 1549.

L. Forman. Favus of the scalp. *Proc. R.S.M.*, 1932, xxv, 1550.

C. Worster Drought. Unusual form of familial myopathy in mother and two children. *Proc. R.S.M.*, 1932, xxv, 1540.

—— Cerebellar ataxia of doubtful ætiology, *ibid.*, 1536.

R. L. Waterfield. Differential diagnosis of glandular fever. *J. Clin. Res.*, 1932, xviii, 87.

J. W. Shackle. Red cell sizes and their significance. *J. Clin. Res.*, 1932, xviii, 93.

Birth

WILLIAMS.—On August 27th, 1932, to Gladys (née Bennett), wife of H. Keith Williams, M.C., M.B., B.S. (Lond.), Attwood House, Basingstoke—a daughter.

EDS. { E. S. / M. McA.

GUY'S HOSPITAL GAZETTE

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PASSIM

WITH the return of the members of the Staff from their annual exodus one recognises that the summer, at long last one worthy of the name, is drawing to a close. Like homing swallows, tanned faces that have been absent from the Hospital for several weeks are to be seen daily arriving at the Colonnade steps at 2 o'clock, there to be greeted by the wan smiles and pale faces of their respective House Officers.

It is indeed a depressing fact that, although the medical student is notoriously turbulent and lazy, yet as he advances up the rungs of the scholastic ladder holidays become fewer and farther between. In the Medical School there can be no complaint of the lack of free time, and even when he gets into the wards he can usually manage to get at least a week off during each appointment and longer in the summer, with practically all his week-ends free.

It is by the time that exams. are looming on the horizon and he is in the midst of his Finals that the need for relaxation becomes perhaps most pressing, and should he successfully qualify and start doing House appointments—in fact, when he has started working in earnest—then holidays are practically non-existent.

No House appointment at this Hospital is in the nature of a sinecure, and most people will admit that living in the far from salubrious Borough, combined with insufficient exercise, is enough to undermine the health of even the most robust among us—as, unfortunately, it not infrequently does.

Although definite holidays for House Officers at specified dates during the year would present numerous difficulties, yet it seems not unreasonable to suggest that the Clinicals and the great band of recently qualified unemployed should be allowed to fill vacancies of the more responsible posts even though lacking in a certain amount of experience.

▭

WE review this week the "History of St. Thomas's," by Mr. F. G. Parsons. Though our reviewer has commented with favour on the actions of the notorious Dr. Layton who inspected the monasteries before the dissolution, he does not mention that other Layton who was given notice to leave a house that he had leased from the Governors because "when he is drunken he beateth his wife unreasonably." But St. George's Church is not a far cry to our reviewer, and surely he can tell us the history attached to that dismal alley now known as Layton's Buildings and familiar to most externs.

▭

To the average student of pathology the term "morbid anatomy" only too often brings visions of bottled specimens—drab, faded memorials of disease. These confront him periodically across the baize table in the Examination Hall when, in a few anxious moments, he has to piece together the broken ends, gather up a few fragments here and there, and invent some sort of story about their inner mystery. But their day of triumph is over, for by modern fixing methods they are made to retain their natural colour and so now excite, not disgust, but admiration. For some years past a museum in the new idea has been springing up beside the Post-mortem Room, and not long ago the specimens there were catalogued

and fully described, so that what was a maze is now a real short cut to knowledge.

And now the Gordon Museum has disclosed its secrets. For 20 or 30 years the Curators have been collecting steadily, fixing their specimens by the Kayserling method, and in the last few months the result of their labour has appeared on the shelves. Vivid touches of reds, yellows and browns now mingle with the original relics and relieve the monotony of a constant dull greyish-white. There are about 600 new specimens for the earnest pathologist to master, and to help him a new catalogue, made up in interleaved book form, has been provided especially for the new material and kept quite distinct from the original catalogue. The bottles themselves are unlabelled, and so we are at last deprived of that tantalising game of delicate oscillation of the specimen in an attempt to upturn the floating label.

The collection, though mainly of surgical interest, is extremely varied, and Guy's has good reason to thank Mr. Davies-Colley and Mr. Freezer for their great work over the last few years. It will not be long now, perhaps, before the young physician who, wanting to gaze on the results of lobar pneumonia, will see not a solid cheesy mass, but a beautiful example of grey porphyry.

Obituary

DR. E. R. HART

THE death took place in a London nursing home early on Thursday morning of Dr. Ernest Ravensworth Hart, of Southgate Street, and Chilbolton Cottage, Chilbolton Avenue, Winchester. The deceased gentleman, who was a son of the Rev. H. Bramley Hart, was a skilled ophthalmic surgeon (M.R.C.S. Lond., 1912), and as well as his consulting room at 47, Southgate Street, he had a consulting room at 126, Harley Street, London, W.1. He was appointed one of the Hon. Ophthalmic Surgeons of the Royal Hampshire County Hospital on April 16th, 1930, and from about the same time he had been a part-time Medical Officer under the Hants County Council for ophthalmic cases. Those who received the benefit of his professional treatment spoke in the highest terms of his extreme skill and kindliness, and his loss in a vital branch of his profession is undoubtedly very great. Dr. Hart was also clinic assistant at Moorfields, the big London Eye Hospital, and hon. surgeon and clinic assistant at Guy's Hospital.

The precise circumstances of Dr. Hart's death do not seem to be definitely known in Winchester, but one statement is to the following effect: He had recently had a long illness in Winchester. From this he got better, and he and Mrs. Hart were going on holiday abroad. They were in London when Mrs. Hart was taken ill and had to go into a nursing home. Anxiety with regard to the illness of his wife brought on a recurrence of Dr. Hart's illness, and he, too, was removed to a nursing home. Mrs. Hart has recovered. In addition to his wife, Dr. Hart is survived by one daughter, a pupil at St. Swithun's School. He was about 45 years of age.

Angina Pectoris

A Clinical Lecture delivered at Guy's Hospital on September 2nd, 1932, by Dr. A. H. Douthwaite

GENTLEMEN, — Angina pectoris is a paroxysmal disturbance of the cardio-vascular system presenting three cardinal features, namely, pain, fear and immobility.

ÆTIOLOGY

Angina attacks the male sex predominantly, and the disease generally occurs between the ages of 40 and 60. Of the predisposing diseases syphilis is one to bear in mind, but is, in my experience, uncommon. Arterial degeneration, hyperpiesia, gout, lead poisoning, excessive smoking and alcoholism may lead to vascular disease and, secondarily, to angina. Many cases, however, occur in teetotalers and non-smokers. The type of man who develops angina is he who has put his life into his work, the hyper-conscientious brain-worker who has carried a heavy load of responsibility.

Less commonly angina occurs in women, and even children have died from it when complicating an attack of rheumatic fever with aortitis. Chronic

sepsis, in particular if it exist in the gall bladder, may ultimately cause angina. It may be argued that the type of individual who is liable to develop gall-stones is also of the build often associated with angina, and that the connection is purely one of coincidence. This view is not generally accepted, and it seems probable that chronic cholecystitis and angina are in some way linked together.

Severe anæmia, particularly Addison's form, may predispose to typical anginal attacks, a point of some importance in considering the origin of the pain.

PROVOCATIVE FACTORS

In descending order of importance these are: physical exertion, extreme emotion (especially that of anger), exposure to cold, overloading of the stomach with food, and flatulence. It should be remembered that the last-named is often an accompaniment rather than a cause of the malady.

PATHOLOGY

At autopsy, surprisingly little may be found to account for the anginal seizures, but, as a rule, aortic and coronary atheroma, often with calcification, are evident. In particular, the first few inches of the aorta are involved in the morbid process which may be found to have implicated, and partly occluded, the mouths of the coronary arteries. Less frequently, aneurysm, syphilitic aortitis, acute or old rheumatic aortitis with valvular involvement may be present. The heart is often apparently unchanged, but enlargement and diffuse scarring are not uncommon.

There has been much discussion in recent years as to the actual cause of anginal pain. Allbutt believed that it was aortic in origin and referable to stretching of the diseased vessel with transmission of tension to the sensitive tunica adventitia. This would not, however, explain those cases of angina arising in the absence of gross aortic lesions including anæmias. The point in common in the two conditions is an anoxæmia affecting the myocardium. In the common type the demand for increased blood flow occasioned by effort cannot be supplied by the diseased vessels, whereas in anæmia, though the coronary arteries may be intact, the state of the blood is at fault. The pain can thus be likened to that produced in the forearm, deprived of its circulation by a tourniquet, when attempts are made to open and shut the fist. The actual pain stimulus is provided by the unoxidised products of muscular activity.

THE ANGINAL ATTACK

Before describing a fully developed anginal seizure I should remind you that this rarely occurs before several minor warnings have manifested themselves over the course of many months. These I shall deal with subsequently.

A man of 50 years departs hurriedly for his morning train immediately after breakfast. He puts on an extra spurt up the last incline and is then seized by crushing pain situated about the upper third of the sternum. He sinks on to the nearest support, and thus remains in frozen immobility utterly at variance with the sensation of tearing within his thorax. That the agony of pain is associated with unusual fear is evidenced only too clearly by his expression of utter horror in face of death. In a few minutes the pain lessens; the respiration, previously but a short grunt or moan, becomes free; colour returns to the face, and the unfortunate victim rises to his feet falteringly, scarcely able to believe that he is still of this world. After a few more moments, characterised by eructation, no signs remain to indicate a recent struggle with death.

Let us now consider the main symptoms in detail. The character of the pain I have described. As regards position and spread, starting beneath the sternum it radiates into the inner side of the left arm, sometimes affects both arms, and may extend right down to the fingers. With further radiation it may spread into the neck and head. It generally lasts a few minutes and then passes off, leaving a residual soreness which recedes in a few hours to a few days.

The pain occasionally occurs in unusual positions. It may start in the epigastrium, but then spreads up into the sternum and follows the usual paths. The face, chin and front teeth are other uncommon positions. I was called to a man who had for two years suffered from almost unbearable pain in the chin and teeth. The history, always the most important diagnostic aid, gave the clue. It was that when he rolled the lawn the pain came on and forced him to a standstill. Observe again the immobility caused by angina. The diagnosis was clinched soon afterwards by a further attack in which the pain, for the first time, passed from chin to sternum and terminated in death.

More recently I have observed an apparently precisely similar case in a woman of 56 who has not, as yet, verified the diagnosis as dramatically.

The fear which is experienced in most severe attacks, but occasionally in quite mild ones so far as pain is concerned, is a most interesting symptom. As emphasised by Dr. Ryle, it is, strictly speaking, a terrifying emotion engendered by the

sensation of dying rather than of approaching dissolution. He offers the attractive theory that it is referable to profound disturbance of the vital centres in the medulla occasioned by the arrival of intense sensory impulses from the seat of the disease. This view is upheld by the fact that similar sensations of dying may be experienced as the result of lesions in, or intense stimulation of, the medulla, *e.g.*, injury in the course of cisterna puncture or extreme labyrinthine vertigo.

Immobility is of even greater diagnostic importance. In every case an attack tends to produce complete cessation of activity which affects not only the general musculature, but also that concerned with respiration. Note how different this picture is from that of the common congestive heart failure, with its restlessness and dyspnœa. The breath is held for 30 seconds or so and then taken in short jerks, the patient feeling that a full respiration would result in complete destruction of his thorax.

PHYSICAL SIGNS

There are surprisingly few signs to be observed in an anginal attack and these are chiefly on the body surface—the haunted expression in the eyes, the drawn, pallid face, cold perspiration and chilled body surface. More often than not the first sound at the apex beat is enfeebled, and a clanging aortic closure points to the existence of advanced atheroma. The blood pressure varies but little and is often raised, though not to a great degree above its former level. Occasionally changes in the lungs occur during an attack, the condition being one of acute over-distension of the alveoli due to bronchial spasm. I had the good fortune to be listening to the chest of an anginal patient when an attack supervened. The ordinary vesicular murmur came to an abrupt standstill and, when respiration recommenced, it was replaced by a high-pitched wheezing in the expiratory phase, with great diminution in the excursion of the chest. Within a minute of the subsidence of the pain the pulmonary sounds were again normal. When the attack passes off the patient's colour rapidly returns. There may be belching up of wind and passage of a dilute urine.

MINOR ATTACKS

Once having appreciated the rhythm of angina vera there should be no difficulty in recognising the disease in its earliest manifestation. Replace pain by a feeling of substernal tension or a heavy weight in the chest; substitute slight apprehension for the fear we have discussed, and an inclination to remain still for complete immobility and you will have a clear picture of angina in its infancy. In such cases the patients almost invariably complain of indigestion. They feel that if they could "bring up wind" all would be well. On inquiry, it is elicited that the discomfort is felt in the centre of the chest, about the mid-sternal region. It is noticed on going for a walk after a heavy meal, particularly in the case of City workers, on hurrying to catch the morning train after partaking of the large breakfast which is favoured in this country. Notice, however, that even in such mild attacks the tendency is towards immobility, *i.e.*, the patient finds that he must stand still for a few minutes, when the discomfort will vanish. An observant man may even tell you that for the moment he cannot take a full breath because of the "lump" in his chest. That he feels ill in the attack is evidenced by the fact that he consults you, although when so doing he usually makes light of the matter—largely, I think, due to an attempt to repress the as yet vague premonitions of grave mischief. The most striking example which I have met of the importance of careful history-taking was provided me by a man of 60 years of age, a non-smoker and teetotaler, who had never had a day's illness. Every morning he used to walk four miles along the sea front. For a few weeks he had noticed a sensation of heaviness exactly in the mid-line shortly below Ludwig's angle. This came on towards the end of the walk, or when he turned to face a strong wind. His inclination was to sit down, but he forced himself to carry on, though at a slower pace. As soon as he reached home and rested the sensation vanished. Examination revealed no abnormality throughout his various systems. An electrocardiogram was normal. Nevertheless, on the strength of the history a diagnosis of angina pectoris was made. A year later, in his first attack of real pain, he died.

The great difficulty you will encounter, having diagnosed angina in its early stages, will be the attitude of the patients and relatives towards your warnings. You will be regarded as a scaremonger if you have the temerity to pronounce as anginal a mere discomfort which they declare to be relieved by a dose of bicarbonate of soda. On the other hand, if you do not warn your patient you will be failing in your duty. As a case in point let me tell you of a retired sea captain who complained of "bronchial asthma." One found that on exertion he had a tight feeling in his chest which interfered with breathing, and disappeared on resting. Occasionally it amounted to pain and passed into the left arm. He was assured of the nature of his symptoms and urged to rest completely for some days. He went straight off to his club and held forth on the neuroticism of

doctors. His sudden death a few weeks later presented the gloomy satisfaction of a correct diagnosis.

DIFFERENTIAL DIAGNOSIS

Gall-stone colic may be confused with angina, but the history and signs and absence of immobility in the attack will help to settle the problem.

Cardiac infarction is of much greater importance, occurring, as it often does, in anginal subjects. It is due to thrombosis in a diseased coronary vessel, and produces intense pain which persists for many hours or days. It probably accounts for the condition previously described as status anginosus. The pain comes on with the same suddenness, but not after exertion, the patient often being in bed. It is usually felt in the lower rather than the upper part of the sternum; it is very severe, as in angina, but of longer duration. As regards the attitude of the patient, in angina there is immobility; in infarction it is that of writhing in pain and with pronounced dyspnœa.

As to signs, in coronary thrombosis the blood pressure falls, the heart-sounds are scarcely audible and the pulse is small and rapid. Such changes are to be expected when a large area of myocardium has been rendered functionless. A few days after infarction, an adventitious sound arises in the form of a pericardial rub. In cardiac infarction there is mild leucocytosis of 15,000 to 20,000. The temperature may also rise to 99° or 100°. Signs of heart failure, such as enlargement of the liver and the appearance of œdema, are common. Shock and vomiting occur with greater frequency in infarction than in angina.

In patients under 45 years of age coronary thrombosis is more likely to be the cause of pain than angina. In such cases it is commonly referable to focal sepsis.

Finally, a characteristic change occurs in the electro-cardiogram from cardiac infarction, but never from angina. After the former the iso-electric period between the R, S and T waves is absent, the R-T section being elevated. After some weeks the T wave is inverted and of large amplitude, but the earlier change has now vanished.

Amyl nitrite is the last drug which should be used in coronary thrombosis, but morphine should be given at once to quell the intense pain and afford bodily rest. Venesection may be life-saving in the presence of cyanosis and signs of congestive heart failure. It is not sufficiently appreciated that an individual who has experienced the first pangs of cardiac infarction and who still suffers for days afterwards from persistent pain not only tends to lose his morale, but also suffers from a lowering of his threshold of pain sensation. In my opinion cannabis indica is here the drug of choice. It produces a calm, languorous state, and even the associated visual hallucinations are not, I gather, unpleasant in character, nor so vivid as completely to replace the reality of the actual environment. Not less than 3 grains of the extract with 5 grains of amidopyrin in a cachet may be taken with advantage twice daily. Constipation, depression and loss of appetite do not attend the use of the drug, which has also definite analgesic properties.

Pseudo-angina, though closely resembling angina, usually occurs in persons between 20 and 50, particularly in women. It is brought on by fatigue as opposed to sudden exertion, worry, emotion, the menopause and flatulence. For example, a lady, aged 48, consulted me for substernal pain, arising towards the end of the day when she was thoroughly tired. It radiated into the left arm and left side of the neck. The pain was severe and lasted from ten minutes to half an hour. It was sometimes relieved by drinking hot water. She was dyspnœic in the attack and the skin was blanched. Occasionally fainting culminated the seizure. On inquiry it was found that she lived the harassed life of a stepmother, with a mentally afflicted husband who required constant attention and who was most difficult to handle.

On examination no abnormalities could be detected, either clinically or electro-cardiographically. Shortly before one attack, however, I found that the systolic blood pressure had risen from the usual 140 to 170. This was accompanied by coldness and blanching of the extremities. The attack was aborted by inhalation of amyl nitrite. She was free from pain during the six weeks that she was away from home.

It is possible that the symptoms, though fundamentally dependent upon the mental stress from which she suffered, were called forth by a widespread vaso-constriction, with consequent strain on the aorta and heart. A year ago her husband died, and she has been free from attacks ever since. To sum up, the diagnosis of pseudo-angina may be entertained if the attacks occur in relatively young people, particularly young women, who exhibit no physical signs of disease, but are often of neurotic temperament. Warnings in the form of coldness and pallor of the extremities, and palpitation, leading up to an attack in which extra-systoles and "ambulatory dyspnœa," as opposed to the immobility of angina vera, are prominent features, all help to confirm the suspicion. But the diagnosis of pseudo-angina must be made with the greatest caution and after the most painstaking investigations.

PROGNOSIS

The first attack of angina may kill the patient, though rarely, or he may suffer for years before eventually succumbing. The main points to consider are the condition of the heart and blood-vessels, and the degree of exertion required to initiate an attack. Angina pectoris with a normal or low blood pressure is usually more serious than in hyperpietics.

TREATMENT

Pain must be relieved at once, and for this purpose amyl nitrite is usually completely satisfactory. If this fail, morphine must be injected, though I confess to being uneasy of its use, having seen death in three consecutive cases within 20 minutes of its administration. Flatulence which accompanies or precipitates an anginal seizure may be relieved and the pain cut short by brandy, sal volatile and hot water. In fact, this simple remedy may prove more efficacious than the drugs in general use. The sufferer must be warned never to be without his nitrite capsules day or night, but, in addition to this, I advise him to carry a single dose, composed in this manner :—

R.—Liq. trinitrini	2 minims.
Tr. card. co.	20 ,,
Spt. ammon. aromat.	10 ,,
Spt. vin. gallic.	15 ,,
Aq. ad	2 drachms.

If such a mixture is taken immediately substernal tension becomes evident, the attack may be aborted and the unpleasant effect of giddiness produced by amyl nitrite is avoided.

Treatment of a severe attack, then, presents no great difficulty, but to be of any real use to your patients you must diagnose angina pectoris before a typical paroxysm has occurred.

Go into every detail of the daily routine in order to eliminate unnecessary work and worry, excessive exercise, or exposure to unrecognised dangers. This necessitates writing down for your patient certain precautions. Starting at the beginning of the day, in winter the bedroom windows must be shut and a fire lit at least half an hour before he rises. Similarly, the bathroom and lavatory must be warmed before use. He should not strain at stool, so some suitable laxative may be necessary. He must not leave the house in the early morning in very cold weather if it can be avoided. He must be careful to breathe through the nose so as to warm up the inspired air, and on no account may he hurry. Hills and stairs must be taken deliberately, and no heavy articles should be carried. Rest after the main meal of the day should be enjoined, and, finally, the bedroom and bed must be well warmed before retiring. Elderly men are often compelled during the night to rise in order to micturate. As the room will now be cold such action is a great danger, and a bed bottle should be insisted upon.

Treatment by means of Nauheim baths and exercises is often of value, particularly in cases exhibiting a raised blood pressure.

There are some heroic measures, such as operating on obstinate cases of angina pectoris. But there is a great danger of attacks being brought on by emotion, and preparation of a patient for operation seems to be a most likely way of calling forth the symptoms and possibly killing him. If, in spite of all efforts, the seizure become more frequent and life is absolutely miserable, then operation is justified, but remember to warn the relatives that death may occur on the table before you start. One operation is cervical sympathectomy. Afferent impulses from the heart pass to the cord by way of the cardiac nerves to the cervical sympathetic trunk, also by fibres to the stellate ganglion, and still further down to the dorsal sympathetic chain. Even entire removal of the cervical sympathetic will fail to interrupt the lowest of these fibres.

On the other hand, the chief communications between the cervico-dorsal sympathetic and the spinal cord are through the rami communicantes of the upper dorsal nerves. These rami are blocked if the alternative operation of paravertebral injection of 5 c.c. of 85 per cent. alcohol into the upper five intercostal nerves is employed. The injection is made as close as possible to the intervertebral foramen, and, if successful, produces anæsthesia of half the chest-wall, with a contracted pupil and narrow palpebral fissure. This procedure is safer and more satisfactory, and the effect of abolishing pain may last for three or four years.

Lacarnol is a drug now on trial for this condition. It is, in fact, a muscle extract reputed to induce coronary dilatation if administered per os or by injection. As in most cases of severe angina these vessels are rigid, the value of the preparation must of necessity be limited; ½ c.c. thrice daily, by mouth, or 1 c.c. intramuscularly, daily may be given.

If you will reconsider the picture which I have attempted to draw you, you will appreciate the fact that the diagnosis can be made with a high degree of certainty from the patient's story alone. The value of history is by no disease more clearly emphasised. Though you may never witness an anginal seizure during your years at hospital, be assured that it will demand your judgment and skill within a year of embarking on general practice. It is with the hope that I may help you to prove adequate to the occasion that I have ventured to address you to-day.

The Seven Ages of Medicine

(Being a well-known excerpt from Shakespeare, with such few alterations as may make it pertinent to the subject.)

Jacques.—The hospital's a stage,
And all the students in it merely players.
They have their *vivas* and their clinicals;
And one man in his time ploughs many times,
His course being seven years. The First M.B.,
Poring and brooding on the gutted frog.
And then the grim dissector, with his scalpel,
And rattling skeleton, scrabbling his way
Thro' weazen flesh to bone. And then the ward-clerk,
Racing the trolley with a fev'rish haste
To get the dressers' tea. Then medical,
With recent stethoscope and pond'rous book,
Steeped in the gore of Wassermann and blood-count,
Dragging his weary limbs from bed to bed,
With eye upon the clock. And then the dresser,
In sterile glove and gown, and phantom mask,
With rigid gaze upon the gaping wound,
Full of excuse for dressings left undone;
And so he does his stuff. The next stage shifts
Into the harassed extern on his round,
With black midwifery bag and rasping bike,
His eyes half-shut, unwillingly aroused
From his repose; and his once lusty voice,
Urging the tremulous primate in her trial,
Turns to a husky croak. Last scene of all,
That ends this strange eventful history,
Is clinical, a house-appointment, but—
Sans pay, *sans* beer, *sans* love, *sans* everything.

As You Hike It.
(*Act* 2, *Scene* 7.)
W. S. N.

New Observations on Dental Caries

A SYMPOSIUM on dental caries was held in Pittsburgh, June 23rd, 1932, under the auspices of the International Association for Dental Research. The main papers were presented by Dr. H. E. Friesell, Dean, University of Pittsburgh School of Dentistry, and Dr. J. J. Enright, a research specialist of Mellon Institute. These contributions gave the first complete account of the results of a comprehensive scientific investigation of dental caries that has been in progress at Mellon Institute and the University of Pittsburgh during the past nine years. Prominent scientists who discussed these findings at the meeting were Dr. William J. Gies, Columbia University; Dr. Edward H. Hatton, Northwestern University; Dr. R. W. Bunting, University of Michigan; Major F. E. Rodriguez, Dental Corps, U.S. Army; Dr. Philip Jay, University of Michigan, and Dr. Theodor Rosebury, Columbia University.

Dr. Friesell gave a description of the present status of the scientific knowledge of dental caries and followed with a presentation of the clinical aspects of the disease, pointing out that the peculiar localisation of the carious processes could be correlated as due to active causative agents in the immediate environment of the teeth. He reported that a knowledge of the fundamental facts of embryologic and histological nature indicated that nutritional factors are important in a secondary or predisposing manner.

Dr. Enright reported studies of the effects of acids on enamel with simple lactic acid and citric acid buffer solutions, which etched enamel in all ranges studied, even in the neutral and slightly alkaline range. That tooth enamel under natural conditions in the mouth was not dissolved over the entire crowns of the teeth was shown to be due in large measure to the fact that saliva in all of the 225 cases studied was saturated with tricalcium phosphate. In an additional study of the effects of acids on enamel, in which certain pertinent characteristics simulated conditions of the local decay areas in the mouth, it was demonstrated that the degree of acidity necessary to decalcify enamel could be produced only by lactobacilli. The bacteriological study of carious and non-carious patients also showed that the activity of the disease could be correlated with the presence of lactobacilli. This was particularly true when the follow-up examinations were used to substantiate the bacteriological and clinical diagnoses. The mass of evidence presented by earlier workers, confirmed and amplified by these experimental results indicating the importance of lactobacilli, raised the question as to what type they were. An extensive taxonomic study of lactobacilli types from oral and intestinal sources gave a basis for classification of these bacterial forms.

In Dr. Gies's discussion he pointed out the many complex features prevalent in this general field of research. He also congratulated the dental profession, the public and the Pittsburgh group for organising a conference so effective in the fight against tooth decay.

Dr. Bunting discussed the progress that had been made in advancing the view that dental caries is an infective process in which specific types of bacteria, acidogenic and aciduric in nature, are resident on surfaces of teeth and by their acid production cause tooth destruction.

Dr. Hatton emphasised the importance of the clinical features of dental caries, stating that any theory that does not explain the clinical facts that are known about caries is unacceptable.

Major Rodriguez strongly commended the decalcification experiments and the proposed classification of lactobacilli. He called attention to the results of his bacteriological survey, which were even more encouraging than those reported by Drs. Friesell and Enright, respecting the importance of lactobacilli. He also pointed out the desirability of a quantitative rather than a qualitative technique in making bacteriological surveys of the dental zone.

Dr. Jay in his discussion suggested research for methods of controlling overgrowths of lactobacilli in the mouth. He reported that manipulations of the diet had thus far given the Michigan group more encouraging results than had drug therapy in effectively diminishing such overgrowths. He also described an immunologic approach in which he is interested at present.

Dr. Rosebury commended Drs. Friesell and Enright's presentation of the clinical aspects of dental caries as a much needed guide to further experimental investigation in this field. In the light of very recent experience, he urged experimental study of caries in animals as promising more informative results than have been obtained heretofore. He endorsed Dr. Enright's classification of lactobacilli as the best yet offered for stable or older strains. Dr. Rosebury's studies to determine the relationship between enamel solubility and the acidogenic powers of lactobacilli, both in terms of pH, thus far have not given him results similar to those of Dr. Enright and his coworkers. Dr. Rosebury said that the problem is so complex and important that it merits broad research with varied methods of approach.

The proceedings of the symposium have been published in the August issue of the *Journal of Dental Research*, and the full reports of Drs. Friesell and Enright, together with the entire discussions thereof, will appear in the October issue of the same periodical. Reprints of the proceedings will be sent gratis upon direct request to Mellon Institute, Pittsburgh, Pa. Reprints of the complete reports will be available for distribution late in the fall.

Reviews

The History of St. Thomas's Hospital (Vol. I—From the earliest times until A.D. 1600). By F. G. PARSONS, D.Sc., F.R.C.S., F.S.A. Pages xii and 256 with eight Illustrations. Published by Messrs. Methuen & Co., Ltd. *Price* 10*s.* 6*d.*

THE visitor to Normandy will probably find therein more than one American studying it with characteristic industry as the cradle of his race. The Duchy of Normandy is to America as the pre-Stuart St. Thomas's is to Guy's. This book is as surely a part of the history of Guy's as it is of St. Thomas's, and should find access to the shelves of those trained at the younger hospital. The parent institution retains the documents of old time—" letters of kings and queens and great statesmen—old accounts and charges to officials "—which Guy's can no more expect to possess than the United States can be expected to own the original of the Magna Charta. Fortunately, St. Thomas's also has an old and faithful servant saturated with " a real knowledge of the hospital, its traditions and all it contains." To many a middle-aged practitioner, who met him at the L.S.A. or the primary F.R.C.S., Mr. Parsons is known as a kindly but austere examiner. Only a few have been privileged to meet the antiquary who can read the Saxon Chronicle as easily as the student reads his Cunningham, who has deciphered the Marian script of the minutes of his hospital, and has translated the record of temporal possessions which is known as its Chartulary. Some, indeed, have previously been delighted at his power to combine anatomical knowledge with antiquarian lore in the " Earlier Inhabitants of London," and will be keen to learn how he can continue that knowledge to a later date and narrow it to the stage of an institution from that of a city.

Nor will they be disappointed. However interesting intrinsically the subject may be the early history of old institution usually makes dull reading, but Mr. Parsons has strung together his extracts and his comments in a way that keeps the attention and brings out matters of interest. He traces the evolution of the hospital from the ambulatarium of St. Mary's Overie ; he shows the influence upon it first, of the " disastrous fire which destroyed most of the Priory and nearly the whole of Southwark," and secondly, of the Black Death. The former occurred in 1212, and

from it dates the building of St. Thomas's on the east side of the Borough High Street where the Post Office now stands. From it also dated its organisation as an institution separate from St. Mary's (now St. Saviour's) and free from the authority of its Prior. The Black Death hit the hospital by loss of staff and by increase in work, but indirectly was an advantage to it, since several endowments came to it as a result of the epidemic. With Mr. Parsons we may regret that his history tells us so little of medicine in these times, but, though he is able to give us an insight into many things affecting the life of the people, their clothes, their food and drink, their houses, and the development of our English surnames, yet of the history of medicine the history of the hospital tells us nothing.

It has long seemed to the present writer that we may date the development of our profession in this country from the dissolution of the monasteries. It freed medicine from the Church and allowed practitioners to devote the whole of their time to the treatment of the sick and to the study of the subject, without having much of it taken up with the routine of services, celebrations and masses, or with the more occasional ministrations of extreme unction and of burial. Mr. Parsons tells how, in the Middle Ages, physicians were all priests or Jews, until the latter were expelled the country in 1290. On their return they do not seem again to have taken their old position in the medical profession. It is usually thought by the schoolboy of tradition that the dissolution of the monasteries was a part of, and was caused by, the Reformation. This was not so. The two movements in their later stages became mixed up, and the passions roused by the latter caused a partial view to be taken of the former, which has lasted to this day. The Reformation was a spiritual change in the hearts of men. The dissolution of the monasteries was an administrative reform that was long overdue. The monasteries fell because they had ceased to do any good or useful work and because of the evil lives of the men and women that staffed them. In the previous 50 years more than one attempt had been made within the Church to purge these abuses, yet neither Cardinal Morton nor Warham, the Archbishop of Canterbury, was strong enough to carry reform, and it finally became a matter to which the civil government and Parliament had to attend.

The hospital of St. Thomas the Martyr was visited with the other religious houses, and did not come into the short category of noble exceptions of which the Charterhouse was an outstanding example. Affairs, indeed, do not seem to have been as bad as they were at the notorious house at Sion, near Isleworth, unless we may infer that they were so from the term "bawdy," as applied by the visitor. This was Richard Layton, an inspector whose thorough and searching yet just methods might serve as an example to this day. He found things pretty bad. The master, whose conduct was filthy and indecent, kept a concubine within the hospital, and there was a nasty medical scandal at about this time which aroused the indignation of the laity. A poor woman came to the hospital in labour and, being refused admission, died at the church door. The fact that the Master sold the church plate and said it was stolen was a less serious matter. This was being done all over the country. When a great administrative reform is being carried out the upholders of the old order will do all they can to prevent it and, above all, to see that, if possible, no funds are handed over. Some of the money went for a purpose that many would have considered worthy; it was used to support the various rebellions being organised which culminated in the Pilgrimage of Grace. Most of it, however, probably went into the pockets of the monks, who had no idea how they were going to live when they lost their jobs, and a very clever example of this occurred at St. Thomas's. The Master, after consulting the brethren and without any money passing, sold a house at Deptford belonging to the Corporation, and then bought it back again in his own name and "his heirs for ever." Mr. Parsons does not tell us whether these heirs were the children of the concubine, but if they were it was not the only case in which Church property was used to set up with worldly goods the illegitimate children of the head of a monastery.

And so the Hospital of St. Thomas ceased to be, and in 30 years the Hospital of St. Thomas was founded anew, dedicated no longer to the turbulent priest, but to that apostle who might well be considered the patron saint of modern medicine, for he demanded ocular demonstration in support of a statement. The incidents of this foundation form some of the most interesting of Mr. Parsons's story. In their nobler days the abbeys had existed for the benefit of the poor; even in the period of their degeneracy some charitable works had been performed within them. The suppression had ended this. The orphan was no longer cared for. The sick, the lame and the aged had no help, and there was no way in which the genuine case of destitution in either sex could be tided over periods of unemployment. The last is always a difficult group with which to deal; they pass insensibly into the group that includes the "strong beggar" and the "sturdy vagabond"

that the Vagrancy Acts of the time attempted to control. They were unduly numerous at this time. The streets and lanes of London so swarmed with all these that to the citizen's desire to be charitable was added the spur of self-protection arising from the " infection and annoyance of the King's subjects using these streets and places." It was Nicolas Ridley, the Bishop of London, who brought the matter to a head. He took the opportunity when preaching before Edward VI to bring to his notice the distress of the London poor. So impressed was the King by his words that he sent for him and thanked him, and asked his advice as to how things should be remedied. Ridley divided the needy into three groups: the children who were orphans; the sick, lame and aged; and the destitute. He suggested that the old monastery of Grey Friars should be allotted to the children. The older members of the community will remember how, as they drove into the City on the old Atlas or Royal Blue 'bus, they would turn their heads sideways to watch through a gap in the buildings of Newgate Street the boys of the Bluecoat School playing in the grounds of that monastery. A quarter of a century ago Christ's Hospital was removed to Horsham, and the land occupied by the old Grey Friars passed some to the Post Office and some to St. Bartholomew's Hospital. The sick, the lame and the aged were to go to St. Thomas's Hospital. The sick and the lame are still attended to in that institution. We shall be interested to hear in Mr. Parsons's next volume what has become of their responsibility for the aged. The third group were not yet provided for. Mr. Parsons calls them " idle rogues," but that seems too strong a term, for in the letter in which Ridley begged of the King the empty palace of Bridewell for their use, he wrote thus: " Good Mr. Cecil, I must be a suitor in your master Christ's cause. I beseech you be good unto him. The matter is, Sir, alas, he hath lyen too long abroad, as you know, without lodging, in the streets of London, both hungry, naked and cold." They would seem, then, to be genuine cases for the employment of charity. In this way were founded the three Royal Hospitals of Christ, Bridewell and St. Thomas the Apostle, a translation of the Charter of which Mr. Parsons gives in full.

It has been said that the characteristic of the 16th century was *will*, and that the men of that period were greater than the causes for which they fought. If we look through the remains of their writings this would seem, on the surface, to be true, though the writer doubts if it is so of the principles underlying. In Nicolas Ridley's " Remains " we have his criticism of Gardiner's views of the Last Supper, we have his " reasons why the Lord's Board should rather be after the form of table, than of an Altar." We have " certain Godly learned and comfortable conferences between the two reverend fathers Dr. Nicolas Ridley and Master Hugh Latimer." These were in the last days of their lives as prisoners; it would be more interesting to know whether Latimer ever talked with Ridley on the subjects that were incorporated in the latter's famous sermon. For there are more than one example of Latimer bringing isolated instances of hardship before the King. But most of all we should like to have the sermon itself. It has been lost, but from it originated our Voluntary Hospital System—a system that has grown through nearly five centuries—a system of which any country might be glad, and under which anyone may be proud to have served even if the time has come when it is only possible to continue the good work to which it gave rise by a profound moderation of that system.

T. B. L.

An Introduction to Analytical Psychotherapy. By T. A. Ross. Published by Messrs. Edward Arnold & Co. *Price* 10*s*. 6*d*.

IN this volume, written as a supplement to his well-known work on the Common Neuroses, the author seeks to provide a simple exposition of the principles of psycho-analysis, with special attention to its practical capabilities.

While acknowledging his indebtedness to the teachings of Freud, he does not blindly follow in his lead, but rather takes a middle course, between the conflicting doctrines of Freud, Adler, Jung and Janet. He gives an excellent account of the nature and capabilities of the unconscious mind, and stresses the importance of its constructive power as well as its function of storing impressions. In succeeding chapters he deals with transference, dreams, sex problems and regression.

With this basis the author proceeds to the study of an individual case, and, although he indulges in frequent digressions from the point at issue, one feels comfortably assured that he will eventually return to the main theme, which, indeed, he does. The description of the case and the unravelling of its numerous complications afford many valuable lessons.

Throughout the book the author amplifies his arguments with examples taken from actual cases, which greatly enhance the value of the work from the clinical aspect.

It is a pity, however, that the chapter on technique should occur so late in the volume, as a knowledge of the methods employed and recommended for obtaining the pertinent facts of a case would lend greater force to the arguments and descriptions put forward in the chapters on sex problems and dreams.

The Physical Mechanism of the Human Mind. By A. C. DOUGLAS. Published by Messrs. E. & S. Livingstone, Ltd. *Price* 15*s.*

THIS book is written with the aim of placing upon a materialistic and physiological basis the workings of the human mind, and presenting a scientific theory covering all its capabilities and phases of activity.

With the simple reflex arc as his foundation, the author proceeds to build up, upon a scaffolding of evolutionary changes, through the stages of sympathetic, spinal, thalamic and cerebral reflex systems, a structure of increasing complexity embodying at length all the ramifications of the mind. Although the subject is necessarily one of considerable profundity, he maintains throughout a commendable simplicity of language and expounds his precepts with remarkable clarity of idea and example. He makes bounteous reference to works of physiology and psychology in support of his arguments and succeeds in presenting a conception which, if not unreservedly acceptable, is at least stimulating to thought and of great interest.

Correspondence

Haig's work on Uric Acid

To the Editor of the GAZETTE

SIR,—Dr. Mothersole's lecture on Haig's work in connection with Uric Acid, which you publish in your current issue, has recalled so many memories of the 'nineties to me that I feel compelled to comment on the revived interest in the subject.

Haig's work in the laboratory was, I fear, doomed early to failure because he used the Haycraft method of estimation, which no less an authority than the distinguished Guy's man who is now President of the Royal Society told me in 1897 was practically worthless as a process. His clinical work was, of course, not without value in some cases, but in others one is bound to admit that results were now and then not unmixed with needless tragedy.

Haig himself was one of the first to detect that the great rival to his theories was the hypothesis of the infective origin of rheumatism, which was, at the date I speak of, just beginning to be considered. The later discovery of the part played by the local infections of tonsils and teeth, and the like, administered the *coup de grace* in what had been a gallant but a hopeless fight from the first, at all events as regards rheumatism, though Haig himself drew little or no distinction between the causation of rheumatism and of gout.

May I add one word in conclusion? The lecturer referred to the importance of hydrochloric acid in the treatment of anæmia. If I remember rightly, Sir William Hale-White published (also in the 'nineties) a series of cases of chlorosis treated with hydrochloric acid without any benefit resulting therefrom.

Yours, etc.,

M. ASTON KEY.

Southsea.

Sport

List of Rugby Fixtures, 1932-33

1932.		*Opponents.*	*Ground.*
Sept.	10	Trial Game	
,,	17	Catford Bridge	Home
,,	24	Plymouth Albion	Away
,,	26	Cambourne	Away
Oct.	1	United Services Portsmouth	Home
,,	8	Old Blues	Home
,,	15	London Irish	Home
,,	22	Harlequins	Home
Oct.	29	Cheltenham	Away
Nov.	2	Cambridge University	Home
,,	5	Northampton	Home
,,	12	Coventry	Home
,,	19	Birkenhead Park	Home
,,	26	Old Cranleighans	Home
Dec.	3	Richmond	Home
,,	10	Aberavon	Home
,,	17	Coventry	Away
,,	21	United Services Portsmouth	Away
,,	31	Cheltenham	Home

1933.

Jan.	7	Old Merchant Taylors	Away
,,	14	Birkenhead Park	Away
,,	21	*England* v. *Wales*	—
,,	25	Cambridge University	Away
,,	28	Gloucester	Home
Feb.	4	Rosslyn Park	Away
,,	7	*Inter-Hospitals Cup 1st Round* v. *Middlesex*	
Feb.	11	Aberavon	Away
,,	18	Old Milhillians	Home
,,	21	*Inter-Hospitals Cup 2nd Round*	
,,	25	Plymouth Albion	Home
Mar.	2	*Inter-Hospitals Cup Semi-Final*	
,,	4	Old Leysians	Home
,,	15	*Inter-Hospitals Cup Final*	
,,	25	Old Alleynians	Away

Hospital Information, etc.

Pass List

CONJOINT BOARD.
FINAL EXAMINATION.
July, 1932.

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L.D.S., R.C.S. (ENGLAND).
FINAL EXAMINATION.
June, 1932.
PART I.
Surgery.

G. G. Ellis	C. K. Brown
W. F. Rose	H. A. M. Ching
R. J. Cowling	D. A. Fairfax
H. Hack	F. C. Hampson
R. A. Johnson	L. E. Marshall
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S. R. Wallis	K. J. Whitten

PART II.
Dental Surgery.

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R. S. Bruce	T. H. Chignell
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R. J. Eustace	C. B. de V. Green
H. N. V. Hathorn	H. G. Jokelson
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S. Williams	G. R. Wootton

SOCIETY OF APOTHECARIES OF LONDON.
FINAL EXAMINATION.
August, 1932.
Surgery.
V. Constad.
Forensic Medicine.

J. L. Bates	W. Nicholls

Midwifery.
T. E. Mitchell.

Papers by Guy's Men

V. E. Lloyd. Gonorrhœal rheumatism. *Clin. J.*, 1932, lxi, 424.

J. A. Glover and J. Wilson. End results of tonsil and adenoid operation in childhood and adolescence. *B.M.J.*, 1932, ii, 506.

Appointments

Dr. W. R. Kirkpatrick, Medical Officer, N.I. Salt Revenue Dept., Sambhai Lake, Rajputana, India.

Dr. H. I. Maister, Assistant Resident Surgical Officer, Bolton Royal Infirmary, Bolton.

Marriages

CLAYTON-JONES—SHELMERDINE.—On August 4th, 1932, at Littleham, Devon, Edward Clayton-Jones, M.B., B.Ch. (Cantab.), of Hawkhurst, Kent, to Mary Shelmerdine, of the Vicarage, Exmouth, S. Devon.

SMALL—DORMAY.—On September 3rd, 1932, at St. Matthew's Church, Croydon, by the Rev. H. T. Marrable, M.A., M.D., Arthur W. G. Small, L.D.S., R.C.S. (Eng.), only son of Mr. and Mrs. Herbert C. Small, of Thornton Heath, to Primrose, only daughter of Mr. and Mrs. Emery Dormay, of Croydon.

EDS. { E. S. / M. McA.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

BY the death of Sir Charters Symonds the profession loses one of its most distinguished followers and Guy's a son of whom she will always feel proud.

His qualities, both as a surgeon and a man, have been extolled elsewhere, and even the present generations of Guy's students have reason to be grateful to him for the keen interest he took in the Physical Society and its welfare, and for his generosity in equipping the Museum with its new system of lighting, which so materially adds to its comfort.

The numerous letters which we have recently received bear witness to the love and respect in which he was so widely held by all who knew him.

We shall be publishing an account of his life in our next number, but we should like to take this opportunity of extending our deepest sympathy to his relations and friends.

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To all of us the advent of Autumn brings with it some special significance; for many of us it marks the beginning of some stage in our career, some milestone passed or the close of some aspect of our life, and for all of us it brings the realisation that we are a year older.

But it is to our younger readers who are entering the Hospital at the beginning of this year that this number of the *Gazette* is especially devoted.

Although everyone knows that the years one spent at school are supposed to be the happiest of one's life, though there seems very little foundation for this assertion, and most people would vehemently deny it, yet it might well be said of the time one spends at Guy's. Whether one comes straight from school or University, the contrast, both in one's fellows and one's surroundings, cannot be anything but marked, but there is about Guy's something indefinable that is especially attractive and which one finds nowhere else.

Our most ardent supporter could not boast that architecturally the Hospital has claims to glory; it is not the heterogeneous collection of buildings to which one becomes attached, though there is something attractive even in their disarming muddle, but it is the feeling of friendliness that pervades the Hospital which makes it such a delightful place to work in. It exists between all stages, from the most distinguished member of the Staff to the lowest ward clerk, and has become a tradition which even the most snobbish amongst us feels it impossible to withstand.

At whatever stage the newcomer begins his work here, both it and his life will be vastly different from that to which he has been accustomed, and although if he starts in the ward it must, of necessity, be more interesting to be dealing with people than with frogs and test-tubes, yet if he does begin in the Medical School we would urge upon him, from the experience of our own missed opportunities, the great importance of what may seem to him a prolonged and irksome initiation.

Yet Guy's has an even wider range of activity to offer than that devoted to work. It has a pre-eminence in sport second to no other hospital, and practically every branch is well catered for, so that, however unusual your tastes may be, yet there will be several others to share your eccentricities.

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GLANCING through the pages of this *Gazette* the newcomer may well be impressed by the number and varied nature of the sporting activities presented to him by the Clubs' Union. Among such a selection he will surely find scope for that relaxation for which he instinctively craves at the mere sight of the length and detail of the curriculum before him. It is unlikely that he will neglect his professional studies, or be so foolish as to overlook the necessity for regular exercise, but we would remind him that it is only the wise man who will see to it that the intellectual side of his nature is not clogged entirely by medical or dental matters. For that is the whole danger

of the work. The professional interest is so strong, the work so full, varied and, at times, even exciting, that it becomes very difficult for a medical man to retain a mind that is widely educated, or to keep himself in touch with matters of public interest and comment.

It is for that reason that we direct the newcomer's attention particularly to the activities of the Debating Society. This was once a flourishing section of the Clubs' Union. Many years ago it was allowed to lapse. Fortunately, it was revived last Spring, and rejuvenated, and, we hope, refreshed after this long period of slumber, it promises to be one of the brighter children of its parent. A glance at the programme gives us hopes for many an amusing evening, and we would like to congratulate the secretary on the way he hopes to arrange both a Ladies' Night and a discussion of medico-legal points with Gray's Inn Debating Society.

To join the Debating Society should be the aim of all those who have just come to Guy's fresh with new ideas, but it should appeal even more to those who, now in the activities of ward work, need a tonic to save them from that complacent, self-satisfied attitude which a little knowledge engenders, and help to banish that too prevalent dread of public exposition.

It is for the latter class that the Physical Society is especially intended. The opening meeting on October 6th will be attended with keen interest, for Mr. Eason has promised to give the Society an account of the famous libel action between Guy's and the *Lancet* which took place more than 100 years ago over the matter of a mere calculus.

It is regrettable that the Physical Society is going through a lean period at the moment. Though its programme is nearly always a good one, the attendance is unaccountably small and the discussions halting. There are still too many who think it better to stay away and criticise. Luckily there are signs that the younger set have more to say for themselves.

Finally, in a little corner of this number there is an appeal for contributions to the *Gazette*. The Editor's post-bag is always a light one, and for those who, though tongue-tied, are dashing with the pen, there is here a splendid opportunity—even though our payments are "merely nominal."

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THE Opening of the Session 1932-33 and the Distribution of Prizes will take place on Wednesday, October 5th, at 3 p.m. The Bishop of Southwark is giving an address on "Cosmics," and there are many of us who are looking forward to an elucidation of this somewhat ethereal mystery.

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WE wish to express our apologies to our readers for the obvious errors which, by faulty proof-reading, crept into the Obituary notice of Dr. E. R. Hart in our last issue. We sincerely regret the misunderstanding they gave rise to and any distress they may have caused.

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THE following are the select few who deserve our congratulations on being appointed Clinicals:—

A. Bowen-Davies.	R. A. P. Hogbin.
C. A. Clarke.	R. V. Payne.
C. H. Fagge.	R. W. Pickering.

Reflections on Medicine as a Career

By J. Fawcett, Esq., M.D.

MORE than 50 years ago Medicine appealed to me as the most desirable of all professions, and after 46 years' experience of it my choice would be the same had I to start again.

To those who regard it as essential that their work in life should bring them into intimate contact with their fellow-men on the one hand, and yet leave them freedom of choice and space in which to exercise their individual preferences on the other, Medicine offers a wide and prolific field. The field is, indeed, so extensive that to the budding student at first sight the boundaries, perchance, seem almost lost on a limitless horizon, and the goal at which he aims well-nigh beyond his reach. And yet in a few days, or weeks it may be, he realises that the land he has entered is a friendly one, that the powers that be have so regulated his path and ordered his going as to make clear his way, and even to perceive a glimmer of the love for hospital and school ingrained in Guy's men all the world over, and so to appreciate that, although the going may be hard, yet it is the same on any track worth following, and that, on the whole, his lot is cast in pleasant places.

To all except a very small minority our ultimate selection of Medicine is based on that fact that it is to be our source of livelihood, apart from any other reasons which may attract us to it, and there is this comforting thought which we may lay to heart, even should we not attain so great a measure of worldly success as we had dreamt of, that, barring accidents and given the God-sent blessing of good health, there is no need whatever to fear an inability either to earn sufficient to live in comfort, or to meet the usual calls, social or domestic, which life may have in store for us.

In truth, Medicine has much to tender in these days, in no direction more so than amongst the multifarious and onerous claims of general practice, of being all things to all men, and, as one of its greatest privileges and compensations, the possibility of occupying the place of trusted friend and counsellor to our patients in times of trouble and of health.

Then, too, there are the services of the State; for example, the Indian Medical Service, one of fine traditions, affording unlimited opportunities in every branch of our work, medical, surgical or special, and equally indispensable with the great Civil Service of India, even more so indeed in these times than in those past, if the welfare and prosperity of that great continent is to stand secure.

And so I might continue to run up and down the gamut of the whole series of general and special branches of our work, whether concerned with the practice of the art of Medicine, or with its scientific and so-called research sides, its opportunities for teaching, for administration, and in many other directions.

It might be thought that here was the appropriate place in which to offer to you what the late Dr. Moxon called "Advice Gratis," but, happily for those who may read these desultory remarks, I remember that each one of us has in the main to gather experience for himself; also that there is no greater fallacy than to imagine because one is getting older that, therefore, one is getting wiser. Indeed, there is something to be said for Disraeli's view that so long as one has imagination experience is but a back-number, or words to that effect. In any case, to rely too much on the experience and teaching of older people may result in failure to recognise truth when it appears or the need for change, and so in the acceptance of opinions or methods of treatment long after their value is discredited.

"The profit of the game itself, that which makes it worth playing at all, even to those who succeed best, this they (your teachers) can neither refuse nor grant; you bear it in yourselves inalienably, whether you succeed or fail."—*Brewster*, "The Prison."

But if I do not offer you advice from my own experience at least I am not debarred from drawing your attention to a source which has been to me one of unending pleasure and profit. I refer to the collection of charming and wise addresses by the late Sir William Osler to students, to nurses, and to doctors, bound together in a volume entitled "Æquanimitas." There is no book in which, to my mind, the prospect, the ideals, the rewards, and the difficulties of our professional work are more broadly and sympathetically scrutinised, full as the book is throughout of wisdom and help to doctors in all places and of all ages.

There are many of us who recognise with gratitude and obligation a special bond of friendship between Osler and Guy's, for when we think of our own great ones of the past, of Astley Cooper, Babington, Bright, Addison, Wilks, and others, we may recall that Sir William Osler, when addressing the members of the Physical Society in 1905, did us the honour of professing himself a Guy's man, at least by adoption, he having sat at the feet of Guy's physicians and there imbibed the traditions of our school. Before long I hope there may be many of you who will borrow "Æquanimitas" from the library, and, having read it, buy a copy for yourselves.

How true it is, as Professor Osler writes in his first address on "Equanimity," that the acquirement of a certain measure of imperturbability, not hardness, a calm attitude towards the affairs of our professional life, is one at which it is desirable, nay, necessary, to aim, difficult though it may be for some of us to reach. Capacity to compass this control will help us so often when in a tight corner to turn aside "the slings and arrows of outrageous fortune," to keep our heads in an emergency when the lives of men and women depend upon our decisions, and to meet those responsibilities which are bound to come our way, and of which every keen man must hope to have his share. For, after all, responsibility is the salt of life, and to run away from it, to be unprepared to take risks justified in our considered judgment, can but leave us one of a herd, a dull, uninspiring and uninteresting crowd.

And then another asset comes to mind, that of tolerance, a wide-hearted generosity for the opinions of other people. We all know the man in our profession, as elsewhere, who is for ever grumbling at his lot, for ever criticising and never constructing, and we can but liken him to one of the plagues of Egypt, a destroying influence and a pestilence in the land. "Knowledge comes, but wisdom lingers," and the crank or the ever-destructive critic, though he may have knowledge, knows little wisdom, and still less of that spirit of unity, peace and concord so essential for the complete development of our work and for the comfort of our members if we are all to try and pull together in these, or any, days, and to carry on our work in a favourable atmosphere.

It is unnecessary for me to refer further to Sir William Osler's writings; you must read them for yourselves, and I do not believe you will regret it. Nor is it needful for me to eulogise the profession in life which you have already chosen.

As students, the longer you are here the more you will appreciate, as others have before you, what the foundation of Thomas Guy provides. You will look forward to the time when you reach the wards and come to actual grips with the practice of Medicine; then you will see Guy's not only by day but in a new world by night, and in a way which you have never done before you will learn to know your fellow-men of all sorts and sizes, than which I know no better prospect nor anything better to look back upon in the days to come. Of course, in order to obtain a full measure of enjoyment from life's task you must work hard, and not only so, but plan out your work well from the start, and employ sound methods, for no jerry-building will serve in these days. "A man may be young in years, but old in hours if he have lost no time," and to keep young he perforce requires, besides work, a due measure of relaxation which is fully recognised here in the ample opportunities which exist in connection with the activities of the various constituent clubs and societies of the Clubs' Union, as well as elsewhere. May I add one word of warning to those who may be disproportionately attracted by the accessories of modern-day medicine and surgery? There is no short cut to good diagnosis, and students, nay, even qualified practitioners, may be, and are, tempted to place unjustified reliance on radiograms, test-meals, and the like, which, invaluable and necessary as such auxiliaries are in their proper surroundings, must not be abused. They should never be employed to save ourselves trouble, with resultant neglect of the well-tried routine methods of clinical work. That way leads to slipshod, careless and unreliable diagnosis, sometimes causes needless expense to our patients, and may bring calamity upon a hitherto sound reputation. Here is Sir William Osler's wise saying in reference to such or allied matters: "We are apt amidst our learning and our scientific observations to forget that the ear, the eye and the hand are, after all, the chief avenues of knowledge, and to neglect their finer education in our eagerness to learn the mysteries of all "scopes" and our reagents. We need the Experientia as well as the Experimenta."

And now it is time for me to end, and in doing so to add that I see "the sun still on the wall" of Guy's to welcome and shine on you, as it has done on many generations of men in the last 200 years.

I cannot do better in conclusion than follow the example of one of our great and honoured men of the past, Sir Samuel Wilks, who, as Honorary President of the Physical Society, in a farewell letter to the members in 1908, quoted from an address by William Allen, the first, he says, ever delivered to Guy's men. You can read the letter in the *Guy's Hospital Gazette* for October 17, 1908, the address being given, Sir Samuel Wilks states, about the year in which he was born, viz., 1824. It may possibly have been given, I take it, a year or so later, perhaps when "King" Harrison, the Treasurer, opened a medical school of his own in 1825, and so determined our former status of a joint school with St. Thomas's. The paragraph is written in the ornate and eloquent type of English common a hundred years ago, but it will none the less be appreciated by you on that account; it is as follows:—

"Your profession is a liberal one, and it is expected that your conduct shall do honour to that profession. It is not enough that you merely bring to it that knowledge which is essential to the cure of diseases. Suffering humanity requires something more; it desires sensibility of heart and those exalted feelings which distinguish the good and worthy man. These qualifications are necessary to the complete character of a medical man; they will not only be acceptable in the sight of God, but, being congenial with every noble sentiment of the heart, will powerfully contribute to advance even your temporal interest, and enable you to make your way in the world."

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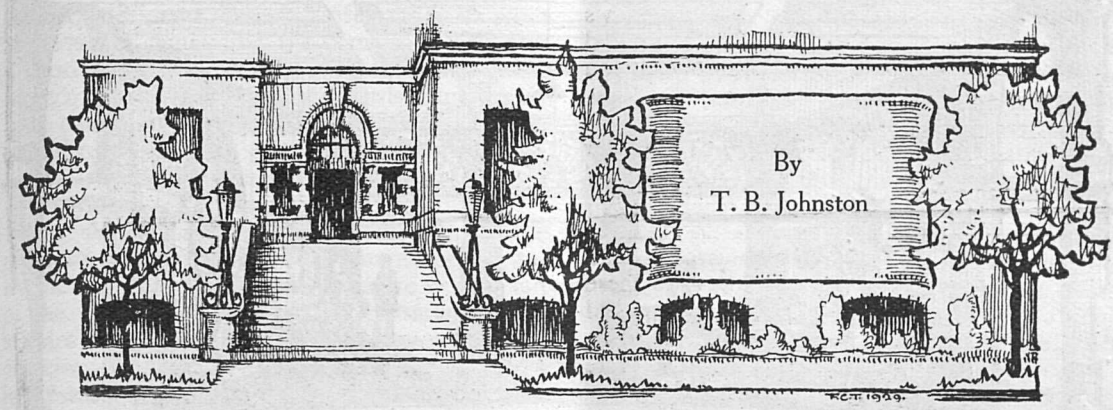
To Those Undertaking the Pre-Clinical Sciences



By
T. B. Johnston

THE subjects of Biology, Chemistry, Physics, Anatomy, Physiology and Pharmacology, which are all included under the title of the Pre-Clinical Sciences, have two distinct, though not unrelated, parts to play in the education of the medical student. By their study he acquires, in the first place, a knowledge of certain basic facts and fundamental principles which form the starting point for the study of medicine in all its branches, and, in the second place, an appreciation of the meaning and value of scientific methods.

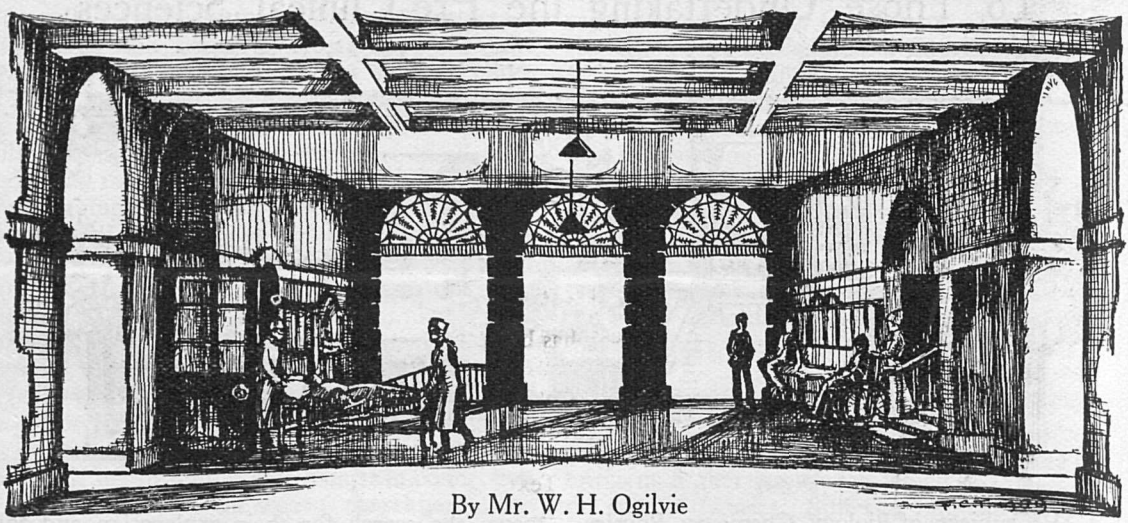
It is scarcely necessary to point out that unless a student is familiar, for example, with the part played by the stomach in the normal process of digestion, he cannot be expected to approach a case of disordered gastric function with any degree of intelligent appreciation. Ignorance of the elementary facts of the structure of the skeleton will preclude him from deriving any useful knowledge from the examination of a patient suffering from a fracture of the humerus. It is unnecessary to multiply examples to show how essential it is for the student to acquire a knowledge of Anatomy and Physiology before he comes to grips with Medicine proper. In a similar way it could be shown that a knowledge of the chemical, physical and biological bases of life processes and body structure is an essential preliminary to the study of Anatomy, Physiology and Pharmacology.

From the intensely practical point of view these pre-clinical sciences have an obvious utilitarian value, but by inculcating a knowledge of scientific methods and an appreciation of their importance they exercise an even greater influence. Scientific method entails the accurate observation of phenomena, the search for their explanation and the confirmation of the explanation, wherever practicable, by experiments, carefully designed and accurately performed. In the various departmental laboratories the student will be given numerous opportunities for using and training his powers of observation; his lecturers or his textbooks will provide him with the explanations and will suggest experiments which may be carried out to test their truth. It should be remembered, however, that for many students the technical manipulations of the experiment are a source of interest and attraction, and care must be taken not to lose sight of the object of the experiment.

The intelligent student must regard both the printed and the spoken word with an open mind. He must accept neither until he has submitted them to his own judgment, and where he can test their accuracy by observation he must do so. He must aim at knowing and understanding the subject before him. Understanding is the best aid to memory, and facts which have to be memorised can be assimilated best if their meaning and their interrelationships with other facts are properly understood.

Despite the amount of work which has got to be completed, there is ample time and opportunity for recreation, both bodily and mental. Every man who is not debarred by physical disability should take up one winter and one summer game, for nobody can do good work unless he is thoroughly fit. In the pre-clinical period the work is necessarily of a sedentary character, and regular exercise is, therefore, all the more important.

To Those Entering the Surgical Wards



By Mr. W. H. Ogilvie

GUY'S HOSPITAL rightly enjoys a world-wide reputation as a medical school, which for generations has sent into all parts of the world doctors armed with practical knowledge and with the willingness and ability to take responsibility which a practical training implies. There are two special advantages of the teaching here—the great wealth of material which passes through the wards and Out-Patients' Department, and the responsibility which is given to every man from the very outset of his career. In each appointment he is not taught only, he is asked to carry out essential work for the Hospital and for his patients, and trusted to carry it out well. At the beginning and close of the clinical period stand two appointments which are peculiar to Guy's, Surgical Ward Clerk and Clinical, and both of them have this combination of responsibility and instruction.

It is on the surgical side of the Hospital that you who are now entering the wards will first encounter the practical side of the profession you have adopted as your life's work, and the human material with which that work is to be carried out. It is as well that it should be so, for here the issues are clearer. Later will come the study of prolonged and progressive disease, of those degenerations which follow upon misspent lives or have causes still unknown, of failures rich in scientific interest, but at present beyond your power to remedy. You will meet much that is depressing. But during your first three months in a surgical ward you will find yourself in one of the most cheerful places in the world, where hope is the keynote, and hard, active, useful work your daily occupation.

For you who have chosen aright, this time will stand out with ineffaceable clearness for the rest of your lives. What has gone before has not been without interest, but the interest was academic. It was like the long drilling on Salisbury Plain, which made the raw recruits into the material of Kitchener's Army. The crossing of the Channel took them from make-believe to real war, the actuality for which all the drill had been a preparation. The rehearsal was over, the curtain was up. And so, in a surgical appointment, you are suddenly in the midst of real life. You are confronted with accidents, sudden infections, grave calamities. In the main it may be said of the patients whom you will encounter, that they are healthy, normal, sane individuals, struck without warning by some sudden misfortune. You are present at this crisis in their lives, and it is in your power to help in fighting it. There is something to be done; and when it is done it is your privilege to see the rewards of victory—the quick recovery and the return of hope.

There is another advantage of starting your career on the surgical side. You are introduced to disease in a comparatively simple form, and the knowledge of anatomy and physiology which is fresh in your mind enables you to grasp very much of what you encounter without the need of lectures or text-books. Very much of surgery deals with local disease, that is to say, there is one faulty structure in an otherwise healthy body. Given a thorough knowledge of anatomy and

pathology the teachings of surgery become self evident. Surgical diagnosis is little more than the answering of two questions—what is the anatomical structure involved and what are the pathological processes that have caused the trouble? A man has thrust his arm through a window and a piece of glass has penetrated the forearm. The first question that faces you, "What structures would be encountered from without inwards if an incision were made in such a situation?" is one that you might reasonably be expected to answer in an anatomical paper. The second question, "Which of these structures has actually been divided?" means an investigation of the sensation of the different nerves, and the movements carried out by the muscles and tendons which lie in the path of the injury, and a search for pulsation in the arteries distal to the wound. The treatment is an exercise in anatomy and craftsmanship, very interesting, because the relations which have been memorised by force of will are now brought vividly before you under the bright light of the operating lamp. Your hardly-acquired knowledge makes you not only a sympathetic fellow-man, but one skilled to restore function and promise recovery to the patient.

During these three months you will work very hard, probably harder than you have ever done before, but it is all tremendous fun. Your primary duty to the Hospital is to keep a record of the cases under your care. This you will do as well as possible, both for your own sake and because on the accuracy and lucidity of your account will depend the value of the record in years to come should the same patient be readmitted or should a series of similar cases be investigated for statistical purposes. Besides clerking, however, you will be expected to help in every activity of the firm to which you are attached, from carrying patients to making tea in the dressers' room during "take-in." This appointment is your great opportunity for making yourself proficient. You should familiarise yourself with the somewhat elaborate routine of modern asepsis. You should take every opportunity to watch the dresser looking after your cases, for in the next appointment you will be a dresser yourself, and will be expected to know your work. It is the privilege of the beginner to ask questions, and this you should do in season and out of season. All knowledge which you acquire will stand you in good stead as a dresser, and as a dresser you will have more work to do yourself and less opportunity to learn by watching that of others.

You will go to bed very tired, and you will find little time to read. Do not therefore make any attempt to work through a surgical text-book, but read up your own cases carefully. True surgical knowledge is part of your own self, and is based upon a memory of individual cases followed through and committed to memory. To be thus remembered each case must be a clear-cut picture; therefore begin at once to form the habit of definite decision. At this stage it is far better to be certain than to be right. To begin with, you will have but little knowledge, but with what knowledge you have examine each case, make a definite diagnosis, and decide what treatment you would adopt. Whether the outcome proves you right or wrong, you will remember it, and you will have learned something in the process. But if you allow yourself alternatives you may be tempted to the complacent reflection that one of them at least was right. Any man who could remember all his mistakes would be the wisest surgeon in England at the age of 60.

Be interested in everything in your patients and your fellows; no less in the nursing which completes the cure than in the operation which initiates it. It is an old saying that the wise doctor treats the patient as well as the disease. Enter into human relationships with your patients. They will call you doctor and will hang upon your words, and there is much you can do to make them well besides ministering to their surgical wants. In this side of your work alone you will learn much that will help you to success in after life. At Guy's we are particularly fortunate in our patients. There is no foreign quarter in the Borough, no shifting population. British dockers, navvies, carters, factory hands and their wives and children, come into our wards to be made well. They are fine people and proud of living round the best hospital in England. Their happiness and our good name are in your hands.

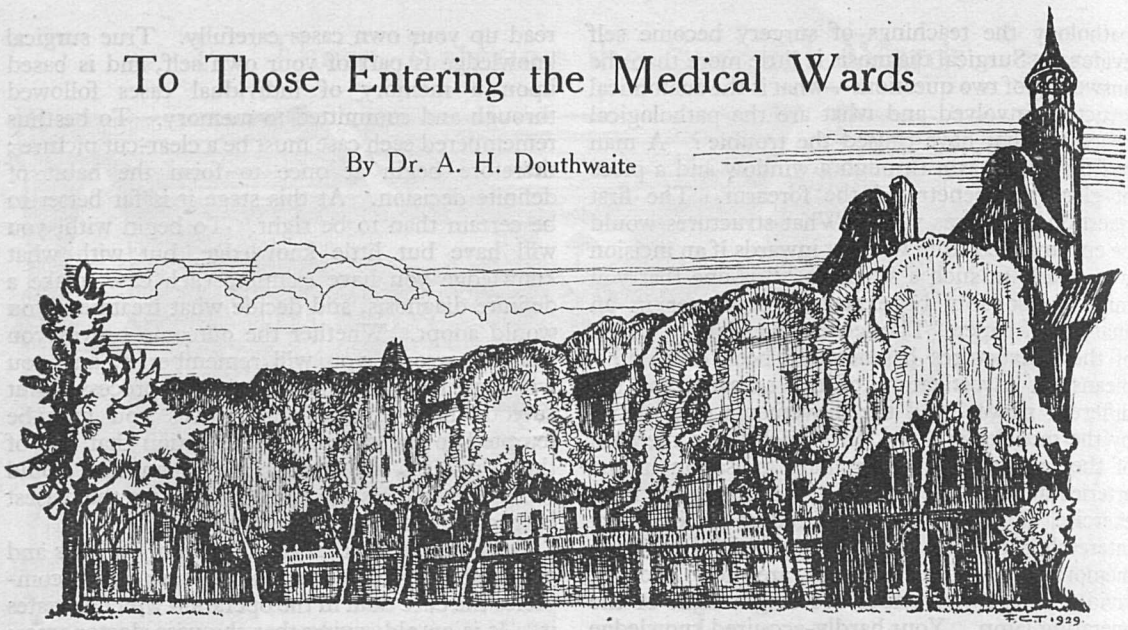
The Innominate Club, 1921

THE fourth Annual Dinner was held at the Trocadero Restaurant on 3rd June last. The Dinner was a great success. H. J. Selby was in the chair and the following 31 members were present:—E. Biddle, H. E. Blake, L. Cann, R. J. Cann, H. G. Close, H. N. Collier, C. K. Colwill, J. J. Conybeare, F. Cook, W. D. Doherty, R. Evans, G. R. Ford, A. T. Fripp, G. T. Hankey, B. E. Hawkins, C. A. N. Hicks, G. S. Landon, J. H. M. Lloyd, A. R. Marsh, J. N. Martin, W. A. Mill, W. H. Ogilvie, J. C. Rowbotham, F. W. Schofield, J. W. Schollum, S. V. Strong, A. C. Taylor, A. Tom, E. C. Warner, H. G. Wimbush, J. Woodhouse. The next Chairman will be Mr. W. A. Mill.

G. T. H.

To Those Entering the Medical Wards

By Dr. A. H. Douthwaite



PARTICULARLY to those of you who come to us from other medical schools, the absence from Guy's of the formality, of the scholastic atmosphere, peculiar to so many hospitals will be very striking. No attempt is made to control your studies as by a schoolmaster. A high degree of freedom is allowed you in the knowledge that every opportunity and help is also offered to those who want to work. You are credited with the intelligence necessary to learn from textbooks, and, therefore, we do not give set courses of instruction by lecture in medicine. The aim at Guy's is to keep as much time free as possible for students to gain practical experience in the wards in order that they shall develop into self-reliant and efficient doctors. The wide capabilities of a Guy's man are recognised by the medical profession all over the world, and are directly attributable to the absence of " spoon-feeding " at this hospital.

It is not my purpose to preach to you of the necessity of hard work and devotion to Guy's. Presumably the majority of you have taken up medicine by inclination, in which case a few days of work amongst sick people will heighten your enthusiasm and provide you with such absorbing studies that no urge will be required.

To the few who are constitutionally tired, again advice will not be offered. No man has ever worked the harder in obedience to exhortation. It may even appear to you that you can drift through your life at Guy's with the minimum of effort. This is to an extent true, but these things are noticed, and have been known to lead to a pressing invitation to transfer allegiance to another hospital.

The abandonment of relatively exact sciences dealing with controllable substances and reactions for a life in the medical wards full of materials which, though superficially uniform in nature, actually differ completely by virtue of the unaccountable processes of human minds, not infrequently produces confusion combined with a fear that the earlier studies can be of little practical help. It is, however, precisely this human element which renders clinical medicine at once so fascinating and yet so difficult, for diagnosis usually rests mainly upon symptomatology, and to a less extent upon physical signs. Symptoms, however, have no fixed standard by which their severity can be assessed; their description is inevitably coloured by the personality of the patient.

The natural tendency to proceed to the examination of a patient without taking a careful history is, therefore, strenuously to be avoided. One should rather devote the greater part of one's time to listening to his story, and then, by careful questioning, sift the relevant from the irrelevant. In so doing, the true nature of the disease commonly reveals itself before ever a finger has been laid on the sufferer.

As a matter of course, a very careful physical overhaul should follow; nothing must be left to chance, which rarely favours its disciples. Nearly all diagnostic mistakes are referable to shoddy history-taking, or incomplete examination. It was a recognition of this fact which lead to the insti-

tution of the Preliminary Clinical Period during which appointment you will have every opportunity of thorough grounding in essentials.

Probably the most valuable time of the day for the acquirement of practical knowledge is that which follows the afternoon round. It is then that the house physician performs lumbar punctures, collection of blood, tapping the chest and so forth. Naturally every opportunity should be seized of watching these procedures, which will, no doubt, be given to you to carry out from time to time. It is now, also, that special signs referred to in the teaching rounds can be re-examined, and thus fixed in the memory. Every evening, for a month at least, one pair of optic discs should be searched for with the ophthalmoscope. Once the knack has been acquired, and this usually comes quite suddenly after several days of disappointment, it will never be lost. It takes much longer, however, to obtain a clear mental picture of the normal as opposed to the diseased disc, and yet recognition of early change may be decisive in clinching a diagnosis, and possibly even in saving a life. It is for this reason that the daily study of retinæ should be made a fetish.

In addition to your work in the wards, you should attend post-mortem demonstrations whenever possible, and attempt constantly to correlate the morbid findings with the reported clinical signs. Nowhere are the many pitfalls which beset the path of the diagnostician so lucidly revealed as in the post-mortem room, where errors are ruthlessly exposed. In years to come you also will experience the epigastric discomfort which assails us on approaching the exposed remains of a case whose malady during life had seemed so simple of explanation.

As to reading, this should be limited to descriptions of any disease which you may have witnessed on that day in the wards, whilst the rest of the evening should be devoted to pathology. A thorough grounding in this subject greatly simplifies the study of sick people and, by allowing of inductive reasoning, robs symptomatology of many of its difficulties.

Do not let your natural, or acquired, enthusiasm for work beguile you into the belief that by living near the hospital you will absorb from the atmosphere a little extra learning. Far from it, you are much more likely to become a prey to disease induced by ill-ventilated, dark and dirty rooms. Eventually it may be necessary for you to take up residence at Guy's; but that will be quite soon enough.

Whereas in pre-clinical years holidays are unnecessarily long, those which can be taken subsequently without the loss of invaluable experience are very scanty. Three weeks a year is the minimum which should be taken, and this must be supplemented by frequent week-ends spent away from town and books.

It is equally important to keep a watchful eye on your mental well-being lest frequent contact with those of similar pursuits lead you into the deplorable condition of having no interest outside that of medicine. To avoid this try to live in diggings with a man in some other faculty, and never go on holiday with a fellow medical student, no matter how desirable a companion he may be.

Seize all opportunities of speaking in public. The Physical Society is an excellent starting point for the practice of an art which is difficult to most of us, but of the utmost value to all.

As a last word, I would draw your attention to the fact that at Guy's quite exceptional reliance will be placed upon you from the moment you take up the duties of ward clerk. Certain examinations are left entirely to you. The case reports are essentially your province. Failure to carry out the duties conscientiously may not only "let down" your house-physician and corresponding member of the visiting staff, but, also, even endanger the lives of patients for whom you share responsibility.

To Those Entering the Nursing Profession

SINCE the last Students' Number of the *Gazette* three sets of nurses have entered the wards, and on September 7th the Preliminary Training School opened with a full complement of pupils. To all we extend a hearty welcome and wish you a successful and happy career. The choice of your profession should hinge primarily on your ideals. If you have come with a real love of caring for sick people, a keen interest, an inquiring mind, and you know how many beans make five, you will do good work and be both successful and happy. Try to enter into human relationship with your patients, appreciating their point of view, so gaining their co-operation, without which you can do very little.

A nurse does not deal with human nature at its best, but often at its worst. There is, therefore, demanded a moral stamina equal to your own needs and those of the patient as well. During the next three years your working life will be full of opportunities of service and of acquiring a wealth of experience. See that few of these

opportunities slip by. Not many of the professions demand such combined physical and mental energy as nursing, and you will need to study the ways and means of economising in the right direction. A close correlation between the Theory and Practice of nursing gives a clearer and fuller understanding of each.

The recreative societies of Guy's Hospital Nurses' League afford opportunities for you to maintain other activities. As far as possible keep up your interests outside hospital life. At the present time the importance of treating the sick mind as well as the body is appreciated. You owe it not only to yourselves, but to your patients to preserve a wide outlook upon life. Give of your best and the best will be returned to you

The Medical Curriculum

1. The Sciences

THE matriculated student will, in his first year, study Inorganic and Physical Chemistry, Physics and General Biology, and at the end of this period, provided he has worked diligently in the laboratories, and attended the Lectures and Revision classes regularly, should have no difficulty in passing the First Examination for Medical Degrees. In his second year he will study Organic Chemistry, together with Anatomy and Physiology, and at the end of the second winter, provided, as before, that he has worked steadily from the commencement, should have little difficulty in passing the First Part of the Second Examination for Medical Degrees. Anatomy, Physiology and Pharmacology are then taken as the Second Part of this Examination at the close of the third winter, prior to commencing Clinical work in the wards.

From Medical and Dental students who are preparing for the Pre-Medical Examination only six months' work is required, but those entering without previous knowledge of Chemistry and Physics will find that time hardly sufficient, and are usually advised to take the full "year" of three terms, or nine months.

The importance of practical work cannot be too greatly emphasised, and lectures and books can but supplement work done in the laboratory. Guy's men have no excuse for neglecting laboratory work. Students are strongly urged to form early the habit of spending their spare hours, apart from those officially allotted, in one or other of the laboratories. Reading should be left for the evening. After a day in the laboratory, reading a good text-book will be found to give ample scope for thought. "Cramming," or the memorising of words and phrases, without a knowledge of the corresponding realities, is one of the worst intellectual habits a student can acquire, and in the long run invariably leads to failure.

CHEMISTRY AND PHYSICS

The student is often tempted to regard the study of Chemistry and Physics as one of very little use when once his preliminary examination is passed, but he will find in his study of the sciences of Physiology, Pharmacology and Pathology that a proper understanding of Physical and Organic Chemistry and Physics is invaluable and essential. That this is so is now fully recognised in the London University curriculum, which should be carefully studied by every London student.

BIOLOGY

Biology, like all the sciences, is properly studied in the laboratory, because things seen are better understood and remembered than things read or heard. Animals and plants are the true sources of a knowledge of biology, and more correct than the text-books written about them. Acquire, therefore, the laboratory habit and record carefully what you observe. Use your books as reminders of the things seen. Draw much. It saves you from the habit of verbal memorising. The drawing of a diagram is the best way of testing the accuracy of one's knowledge in a descriptive science like biology. In the laboratory are also demonstrators whose duty it is to clear up your difficulties. Equip yourself with the necessary instruments. A microscope is needed at once. Its purchase requires care and advice. Students have been known to saddle themselves with an instrument that gives them unsatisfactory results for a whole year, and gets condemned in a later microscopical course. This is poor economy, as the difference in price between a good and poor microscope is small. If you are buying a secondhand instrument, bring it to the laboratory for examination by the demonstrators before you complete the purchase.

ANATOMY

Too much emphasis cannot be laid on the importance of the careful dissection of the human body as an aid to the student in learning the subject of Human Anatomy. The man who has not dissected the whole body with average care can never hope to acquire familiarity with the subject, and experience shows that the man who neglects or "scamps" his dissections—and incidentally endeavours to make up the lost ground by dint of hard reading—has infinitely more difficulty in satisfying the examiners than the man who has completed his dissections conscientiously, even though he may have given much less time to his reading than he might have done. This is, it is true, the sordid examination point of view, but it is, nevertheless, not to be lost to sight.

It is unfortunate that limitations of time and other cogent reasons demand that the student should commence his dissections at the same time as he receives the introductory lectures on anatomy, an arrangement which increases his initial difficulties in the dissecting room. At the very outset he will find himself faced with a mass of facts in which there seems to be neither rhyme nor reason. After a little, however, the fog by which he has been enveloped will begin to lift, and, gradually, he will come to appreciate that what at first appeared to be a chaotic collection of structures, endowed with unintelligible and apparently meaningless names, resolves itself into a reasonable and orderly arrangement of structures, whose names are, for the most part, peculiarly appropriate. There is a danger lest, at this stage, when he is beginning to see daylight, he should occupy too much of his time with the names which must necessarily be given to individual structures. The names themselves have, of course, no intrinsic value, and are merely used to facilitate description. Attention should be devoted instead to discovering the functions of the structures displayed by dissection and to observing the relationship which exists between function and structure. Throughout his whole period in the dissecting-room the student should seek to correlate his Anatomy and his Physiology. If he does so he will find that he is simplifying the task in hand, for the one subject will help him with the other.

It is important, too, to appreciate that while the cadaver is being dissected the topographical information acquired by this means can be applied to the living subject. Most of the superficial structures and many of the deeper ones can be recognised either by the eye or by the hand in the living body, and the student should learn to identify on his own person, so far as is practicable, the various bony points, muscles, tendons, etc., which can be seen or felt. He should also endeavour to visualise on himself the position of the deeper structures which present no surface landmarks. After all, when he enters the wards, and in after life, he will have to deal for the most part with living patients, and, apart from actual surgical operations, he will be compelled to visualise on their bodies the position of the structures which he has dissected in the cadaver. The correlation between the dissected subject and the living body is difficult only when it is regarded as a separate section of human anatomy to be learnt from books, after all the dissections have been completed and in the last few days before the professional examination. The student, therefore, must constantly strive to form mental pictures of the regions as he dissects them, and to project these pictures on to his own body.

Once he has obtained a reasonable knowledge of the general anatomy of the body, the student who possesses any imagination will find Human Embryology a fascinating subject. Here he will find the explanation of much that may have hitherto appeared to be inexplicable, and here, too, he will see modifications of function and structure proceeding side by side.

The Guy's student is fortunate in having a modern and well-equipped department in which to work. In addition to the material which is always available in the dissecting-room and in the specimen rooms, the famous Towne collection of wax models, which is housed in the Anatomical bay of the Gordon Museum, can and ought to be utilised freely for study and for reference.

PHYSIOLOGY

Physiology, which forms the basis upon which scientific medicine, surgery and midwifery rest, will require the most earnest attention on the part of the student during the short space of two years which he can devote to it, and he will find that his understanding of the medical, surgical and pathological problems which he will meet later on varies directly with the thoroughness of his physiological ground work. Some elementary work on the subject such as the book by Bainbridge and Menzies should be read in order to obtain a general knowledge of the scope of the subject.

The student should attend the Lectures on Physiology—for times, *vide* notices—and also the tutorial classes, which are held by the demonstrators. During this time he should read the subject in some text-book such as Starling's *Principles of Human Physiology*, Halliburton's *Handbook of Physiology*, or Howell's *Text Book of Physiology*; *Essentials of Physiology*, by Bainbridge and Menzies, affords a concise, yet readable,

account of the subject. While attending the practical classes held during the winter, the student is advised to read *Practical Physiology* (published by Arnold).

Physiological Clinical demonstrations for senior students are held each week.

Candidates for the M.B. of London or other Universities must, in addition, attend the class in Advanced Practical Physiology, held twice a week during the second winter session, and this class should also be attended by men working for the first F.R.C.S. examination.

Those desirous of obtaining a wider knowledge should supplement the course of reading indicated above with original papers in the *Journal of Physiology*, with parts of *Recent Advances in Physiology*, by Lovatt Evans; *Principles of General Physiology*, by W. M. Bayliss; and *Applied Physiology*, by Samson Wright. Revision classes are held by the Demonstrators during the two months preceding the first F.R.C.S. and the M.B. examinations, and should be attended by all candidates.

A special course is held for candidates for the Honours B.Sc. of the University of London.

PHARMACOLOGY

Pharmacology is the study of the action of medicinal substances on the normal body. It is the basis of all methods of chemical treatment and forms an important natural scientific link between physiology and practical medicine.

A preliminary knowledge of physiology is essential. The student is introduced to the subject before his clinical period, but cannot realise its full significance until he has come face to face with the actual problems of therapeutics in the wards. A short revisional study at this stage of his curriculum is strongly recommended.

A six months' course of bi-weekly lectures and demonstrations is given during the two winter sessions, and should be attended by all students. Revision classes are provided for each of the four examinations of the Conjoint Board yearly. Candidates for the M.B. (Oxford) must also attend the practical classes which commence in January.

Lectures.—On Mondays, 4 p.m., Fridays, 1.15 p.m., in Physiology Theatre, commencing Friday, October 7th.

Demonstrations.—Details to be announced later. In Pharmacology Laboratory. Dates to be announced during lectures.

Revision Classes (Conjoint).—To be held in November in Pharmacology Laboratory. Dates to be announced later.

Text-books.—Dixon's "Manual of Pharmacology" is the most suitable text-book for general use. Gunn's "Introduction to Pharmacology and Therapeutics" summarises the subject in a readable way and is invaluable for revision purposes. The practical classes are based on Sollmann and Hanzlik's "Experimental Pharmacology," but Dixon's "Practical Pharmacology" is sufficient as a short laboratory guide.

A comprehensive Departmental Library is available for those more deeply interested in the subject.

2. Pre-Clinical Period

THE extension by the Examining Bodies of the student's curriculum of study has allowed the addition of an extra period of three months' preliminary instruction before the student actually embarks on his duties in the wards.

It has long been felt that the time allotted to the study of Medicine, in the limited sense, has of late years been encroached upon and curtailed by his duties in the Surgical Wards and the Special Departments, and the opportunity was gladly seized of redressing the balance by giving him extra tuition in medical subjects.

The object of the Pre-Clinical Period is to instruct the student in the routine methods of examination of patients and in the detection and interpretation of physical signs, so that on his entry into the Medical Wards he will be able immediately to derive full benefit from the teaching of the Registrars and Physicians without the laborious explanations and tedious insistence on elementary points necessary before the introduction of the scheme.

In addition to this instruction, which he receives from the Clinical Tutor in charge of the course, the student gets a course of Clinical Chemistry from Dr. Ryffel and Dr. Knott, Elementary Pathology, Minor Surgery and Bandaging from the Surgical Registrars, and instruction in the methods of examining the eyes, ears, nose, etc., from the heads of the departments concerned.

3. The Wards

SURGICAL WARDS

THE appointment of surgical ward clerk is the first of the appointments held by the student during his Clinical training. In many ways it is the best of all the appointments, as most of the teaching, both by the Surgeon and the Registrar, is for his special benefit. Furthermore, a reputation for keenness and ability earned in those early days will follow him and help him throughout the rest of his time at the hospital. Each clerk is attached to one of the surgical units for three months, and it is his duty to record the history and progress of the cases allotted to him.

The wards are open to the student at 10 o'clock, and he should have written up the history of the case and, as far as possible, have examined the patient before the Registrar of the unit begins his round at 10.30, when each case is discussed and the report of the clerk confirmed or amplified. The student during this period will do well to confine most of his attention to the detection of the physical signs, and should procure from the Medical School Office a copy of the red book entitled *Instructions in Case-Taking, Surgical*, which he will find a very good guide to sound and systematic examination of the patients.

While he is acting as ward clerk the student attends a course in Elementary Pathology and Pharmacology, and at the same time has unrivalled opportunities of seeing dressing and operations, more especially during his "take-in" week. There will be much hard work, and many late hours, but there will be also incalculable compensation in seeing and learning the practical points that will stand him in good stead. He is doing his own work of ward clerk, but must remember that he is learning also to be a dresser.

As a dresser the student spends two periods of three months. While the surgical work is very dependent on the dresser for its smooth efficiency and good results, the dresser must realise that he himself is very dependent upon his work, for it is during these six months that he lays the foundation of his surgical knowledge and sound after-care. Someone has said that every surgeon should be his own dresser, so that the dresser must appreciate the responsibilities that he assumes in thus deputising for his surgeon.

We have said very little about the actual tasks of the dresser; he should read the "standing orders" relative to his appointment, and from then on everything depends upon himself. He has been given a valuable appointment and one difficult to do well, but one that repays hard work almost more than any other appointment he can hold.

MEDICAL WARDS

To each medical ward clerk is allotted a certain number of beds, and he is expected to examine and write full reports on all patients who are admitted into these. Occasionally, it so happens that a patient is too ill to be examined except by the House-Physician and Physician, or that a case dies before the ward clerk has had an opportunity of seeing it. Under these circumstances he should obtain the history and an account of the symptoms, physical signs and progress of the case from the House-Physician, and should base his report on these data. It cannot be too strongly insisted that a report, however brief, must be written on every case, and it is of the greatest importance that *the diagnosis and remarks made by the Physician should be entered at once into the report.* Moreover, any errors detected by the Physician or Registrar in the original report should be immediately corrected. In the event of a patient dying, the ward clerk must obtain the abstract of the post-mortem findings and carefully enter it up, and it need hardly be said that all clerks should make every effort to see the post-mortem examination of any case they may have seen during life.

The medical wards are open to clerks from 10 till 12 noon, and from 1.30 till 6.30 in the evening. The Registrars begin their rounds at 10.30, and by that time a clerk should at least have full notes of the history of any new patient who may have been admitted into one of his beds, and he should have a full report in readiness for the Physician in the afternoon. Ward clerks should realise that they are expected to know the details not only of their own cases, but of every patient under their Physician. It is no excuse to plead ignorance because "this is not my case." If only a clerk will take the trouble to make himself conversant with each case in this way he will find at the end of his six months that an enormous amount of clinical material has passed through his hands, and he will probably have acquired enough knowledge of medicine to enable him to pass the Conjoint Final with but little additional reading. But so many men waste their time through sheer laziness in the medical wards, never realising that they are throwing away experience which would prove invaluable to them later on.

Again, the curriculum provides but six months for the study of pure medicine, whereas nine months are allowed for the pursuit of surgical

appointments. Further, during their period of medical clerkship men are apt to take more time than is justified for the study of Pathology and Bacteriology, which they have neglected whilst in the Surgical Wards.

An hour spent in the wards after tea three or four times a week will give opportunities not only for going over cases and writing up reports, but also for seeing the House-Physician tap chests and abdomens, etc. The treatment, too, which each case is receiving, may well be studied at this time.

As regards reading, the best method is to study the text-book account of each disease as one comes across it in the wards or in discussion, and afterwards to compare, if possible, the text-book description with the symptoms and signs presented by the patients. At the same time the most important medical journals should be read regularly, for by this means only can the student keep himself in touch with modern work. The *B.M.J.* and the *Lancet*, the *Quarterly Journal of Medicine*, as well as the *Journal of the American Medical Association*, are especially recommended.

Books that may be recommended are the following: The well-known text-book by Osler, Dr Poulton's revised edition of Taylor, Dr. Conybeare's *Text-book of Medicine*, and *Physical Diagnosis* by Cabot. For second three months ward clerks, the most important monographs in Allbutt's or Osler's *System of Medicine* will prove valuable and interesting reading. For laboratory work Hutchinson and Rainey's *Clinical Methods*, or Dr. French's book will be useful.

OBSTETRIC & GYNÆCOLOGICAL WARDS

After finishing appointments in the Medical and Surgical wards the student is posted to the Obstetric Department for six months. During the latter half of this time he is also attached to the Physician for the Diseases of Children. The Obstetric Dresser is responsible for case-taking in the wards and at Out-Patients, assists at operations, and during one month acts as Extern in the Maternity Charity. The Department has 26 beds reserved for gynæcological cases and 21 for the reception of cases presenting complications in pregnancy, labour and the puerperium and normal labours.

As an intervening link between the Obstetric and Children's Departments is the Salomons Centre, in which the health of mothers and infants is fostered by the practice of preventive medicine.

With this wealth of clinical material it should be possible for every student to obtain a sound knowledge of methods of diagnosis and treatment founded on no small experience. It is, however, recognised by teachers of Gynæcology and Obstetrics that this desideratum is not always attained. It is undoubtedly true that many a young practitioner has to admit a regrettable ignorance of the ailments which afflict his female patients and of the proper management of the pregnant, parturient and lactating woman. And these subjects form the foundation upon which a successful family practice is built. Responsibility for this sad state of affairs hardly rests with the student, but he will do well if he starts his clinical work with the firm determination to avoid the pitfalls that beset his feet. He must realise that practical experience in diseases peculiar to women cannot be acquired in the space of the three months which he will spend in Queen Ward. As he passes from one appointment to another he must resist the tendency to develop the compartmental mind and must endeavour to cultivate a wide outlook on medicine as a whole.

The study of the physiology and pathology of the functions of woman should be begun at the outset and continued throughout the period of clinical training. The man starting as Surgical Ward Clerk should include among his initial purchases a text-book on Gynæcology, for purposes of reference, and should make a point of attending the lectures of the Obstetric Surgeons. He should also avoid no opportunity of acquiring the "tactus eruditus" so essential to the accurate diagnosis of pelvic disorders; the inherent impossibility of permitting a class of students to examine women patients one after the other renders it imperative that this experience be gained over a considerable period of time.

The study of midwifery he may well leave until he becomes an Obstetric Dresser; the art of the accoucheur cannot be learnt from books.

4. Pathology and Bacteriology

PATHOLOGY

WHEN the student has passed the Second Conjoint or M.B. Examination, he is halfway through his medical curriculum, and he should have gained a working knowledge of the functions of the body in health. This knowledge is an essential preliminary to the study of the most important of the medical sciences, viz., Pathology, or the study of the functions of the body in disease. Throughout his life the student, if he continues to study and practise medicine, must ever keep pathology in the foreground. It

is desirable, therefore, that the study of pathology be begun as soon as possible and continued throughout a medical career.

The subject is an exceedingly large one, and it is customary to divide it into several sections :—

1. General and Special Pathology ;
2. Morbid Anatomy ;
3. Morbid Histology ;
4. Bacteriology ;
5. Chemical Pathology.

Due attention must be paid to each of these branches in proportion to their importance relatively to one another and to clinical medicine and surgery as a whole.

During the pre-clinical period the student must attend classes and demonstrations in elementary pathology, bacteriology and chemical pathology.

During the Autumn, Winter and Spring Terms, systematic lectures and demonstrations in pathology and bacteriology are given. Three lectures and three practical classes are held weekly, the former at 9 a.m. and the latter at 12 noon.

Regular attendance at these classes is imperative, and the attractions of the wards and of clinical work should on no account be allowed to interfere with laboratory studies.

While medical ward clerks, during their tenure of office, should attend classes on chemical pathology, it is essential that throughout all ward appointments no opportunity should be missed of continuing the study of pathology.

Apart from set lectures and classes, students and house-officers are cordially invited to make use of the resources and facilities provided by the laboratories in order to add to their knowledge of a subject that lies at the root of all successful clinical work.

Every man should, as far as is practicable, follow out the pathology of each and every one of his cases.

Is a bacteriological investigation to be made ? He should follow it out as far as possible. Is a portion of tissue removed for microscopical examination ? He should see and examine the section. Is a chemical examination demanded ? He should endeavour to see the analysis carried out. He should never miss an autopsy on any one of his cases, and should make a point of keeping a special note-book in which he can enter the clinical history and progress of a case, the post-mortem findings, if the case comes to autopsy, and the result of his histological examination together with a general review of the case in the light of that further evidence.

Set hours cannot be given for these lines of study ; they must be fitted in as time and opportunity permit. In short, efforts should be made to see as much practical work and as many demonstrations in pathology as can be arranged. There are few days when no pathology can be learned. Post-mortems are held nearly every day at 1.30 p.m., except on Wednesdays and Saturdays, when the hours are 12 30 p.m. and 11.30 a.m. respectively. Attendance at these will amply repay the time expended.

Informal classes in Pathology are held three times weekly during the October and May terms. These, though primarily intended for M.B. students, are suitable for, and should be attended by, those sitting for Part I of the M.B.Cantab. and the Final M.B. of Oxford or London University.

During the later clinical appointments certain students may hold a few pathological posts, such as Student Demonstrator, Assistant to the Demonstrators of Morbid Anatomy, Student Assistant in the Bacteriological Department. One or more of these may be held in turn, and they prove exceedingly valuable from the learners' point of view.

There are many books which might be recommended, and what suits one student may not prove attractive to another. The following, however, will prove adequate for all the students' purposes : in Pathology, either MacCallum's, Muir's, or Beattie and Dickson's ; in Morbid Histology, Donaldson's Handbook, and for Bacteriology either Muir and Ritchie's Manual or Bigger's Handbook.

BACTERIOLOGY

Bacteriology, although for a time regarded by the clinician as affording information of merely academic interest, has now made a most profound impression upon the theory and practice of both medicine and surgery, and by providing specific treatment for many microbial infections has emphasised the necessity and stimulated the demand for exact diagnosis, and it is towards this direction that the student's interest is guided by the class in Practical Bacteriology.

Particular attention is devoted from the first instance to the technique of various investigations undertaken in connection with ward work. Thus the student himself examines sputum, pus and morbid exudates by various methods to demonstrate the associated bacteria. He is instructed in staining methods and the practical work of culture making, and is, moreover, encouraged to repeat for himself during the intervals between successive classes any observations and experiments previously carried out, in order to equip him for the performance in general practice of those more obvious methods of bacteriological diagnosis

which experience has shown are both reliable and valuable. Demonstrations are also given upon the life history of the most important of the organisms which are pathogenic to the human race, and by the study of " pure cultures " an attempt is made to impress the chief characteristics of each upon the mind of the student, whilst the changes such organisms undergo or produce when they gain entrance to the human tissues are carefully emphasised.

Throughout the course considerable stress is laid on the further applications of bacteriology to treatment, including the use of various remedial agents such as sera and vaccines, which have been elaborated in the bacteriological laboratory for the treatment of disease, together with those facts and theories relating to natural and acquired immunity upon which bacteriological therapy is based

5. The Special Departments

THE CHILDREN'S DEPARTMENT

In-Patient Accommodation.—Dr. Cameron has under his care 14 cots in the Children's Ward. On two days in the week, at present on Tuesdays and Thursdays at 2 p.m., Dr. Cameron goes round the ward and gives clinical instruction.

Out-Patient Department.—Children under 10 years of age are seen in the Children's Department at Out-Patients on Mondays, Wednesdays and Fridays from 9.30 until 1 o'clock. Dr. Cameron attends on Mondays at 10 a.m., and Dr. Hampson on Wednesdays and Fridays at 10 a.m., when clinical instruction is given.

The Salomons Centre is for the care of the mothers and children of the Midwifery Charity; attendances at the Centre are made by dressers in the Obstetric Department.

OTO-RHINO-LARYNGOLOGICAL DEPARTMENT

This Department is organised on the unit system. There are two units, one under the care of Mr. Mollison, the other of Mr. Layton. Patients are seen in the Out-Patient Department, admitted when necessary to the special wards, Dorcas and Christopher, and returned to the Out-Patient Department. This arrangement allows members of each unit to follow up the cases. Mr. Mollison's firm sees out-patients on Tuesdays and Fridays at 11.30 a.m., Mr. Layton's on Mondays at 9 a.m., and Thursdays at 11.30 a.m.

Dressers are appointed to the respective firms, and have every opportunity of becoming expert in the technique of examination of the ear, nose and throat, and of gaining experience in diagnosis and treatment. Large numbers of school children are seen. Minor operations are performed in the Out-Patient Department; these include, amongst others, operation for the removal of nasal and aural polypi, and of tonsils and adenoids, and for the lavage of the maxillary antrum; these operations are performed under the supervision of the Surgeon or the Clinical Assistant.

Twenty-seven beds and six cots are now allotted to the Department, and each firm operates twice a week. Mr. Mollison and Mr. Layton " take-in " during alternate weeks, and emergencies are admitted under the care of the firm on duty.

THE OPHTHALMIC DEPARTMENT

The Ophthalmic Department of the Hospital is in charge of the two Ophthalmic Surgeons. They are helped by three Assistants, one House Surgeon and Dressers. The Dressers are appointed four times a year for a period of three months, and assist the Surgeons at Out-Patients and at operations, and are responsible for the recording of the cases both in the wards and at Out-Patients. The Ophthalmic Department is an open field for any student to explore as far as he is willing and able, the amount of clinical work being sufficiently great for him to see all the more ordinary and common diseases of the eye in the space of three months.

The student will soon find that he is quite unable to form any opinion of his own on an ophthalmic case until he has mastered the use of the ophthalmoscope and can readily and accurately decide what is the refraction of the eye, and if the " fundus oculi " is healthy and normal. The theory of retinoscopy can be taught and is simple; the practice, however, requires constant application by the student before he can hope to obtain any sort of facility in it. The difficulties are mainly initial ones, and any time and trouble expended in mastering them will well repay any man in after life when he has qualified and is in practice.

MEDICO-NEUROLOGICAL CLINIC

Advanced Ward Teaching for Post-Graduates and Students is given on Tuesdays at 2.15 p.m.; Drs. Hurst, Marshall, Symonds, Gillespie and Witts meet in Mary Ward for the combined round at which a discussion is held on a series of cases.

NEUROLOGICAL DEPARTMENT

This Department is under the direction of Dr. C. P. Symonds and now provides facilities for a full three months clerkship, which offers excellent opportunities to those who desire practical experience in one of the most difficult branches of medicine. Tuesday and Friday mornings are devoted to Out-Patient work; Dr. Symonds holds a teaching round on Thursday mornings in the Eye Ward, while the Registrar usually goes round on Mondays.

DEPARTMENT OF PSYCHOLOGICAL MEDICINE

Now separated from the Neurological Department and providing a full three months course of Clinical tuition. In addition to Lectures and Clinical Demonstrations held at a mental hospital during the summer term, Dr. R. D. Gillespie is also responsible for a series of addresses on Normal Psychology during the spring session. Out-patients are seen on Tuesday and Friday mornings.

THE DERMATOLOGICAL DEPARTMENT

Out-Patient Days.—Mondays, New Cases, 9 a.m. Old Cases, 9.30 a.m.

Wednesdays, New Cases, 9 a.m.

Thursdays, New Cases, 9 a.m.; Old Cases, 9.30 a.m.

Wards.—There are three male and three female beds in the Eye Wards for Dermatological cases requiring careful supervision or treatment in bed.

Instruction in the diagnosis and treatment of diseases of the skin is given in the Out-Patient Department, and clinical demonstrations on selected cases are held from time to time.

THE GENITO-URINARY AND ORTHOPÆDIC DEPARTMENTS

These two appointments are now taken separately, but have a common House Surgeon. Students acting as Dressers in the Genito-Urinary Department have excellent opportunities of acquiring knowledge which will be useful to them in actual practice and examinations. Out-Patients are seen on Tuesday and Friday afternoons.

The Department has 7 male in-patient beds in Christopher, 2 female beds in Queen, and 1 cot in Evelyn.

Students should realise that their attendance at this Out-Patient Department is very necessary, as is evidenced by the very advanced state of disease in which some patients arrive for examination.

The Orthopædic Department comprises a large out-patient clinic and a number of beds devoted to patients suffering from deformity. Out-patients are seen on Monday and Thursday afternoons, and Minor Operations performed on Wednesday afternoon, and in the Out-Patient Department the student will meet with every variety of deformity, congenital and acquired. Considerable facilities are afforded for experience in the relief and cure of all chronic diseases of bones, joints, muscles, etc. Instruction in the principles and most modern practice in the use of appliances, plaster technique, and the more useful forms of Physio-Therapy is given by Mr. Trethowan, the Orthopædic Surgeon, and the Registrar. Numerous operations of a minor nature are done, such as manipulations for stiff and painful joints, correction of misshapen and rickety limbs, correction of scoliosis and immobilisation of tuberculous joints.

The in-patient beds are devoted to the most serious operative cases, such as extensive tendon transplantations, correction of malunited fractures, bone-grafting, the making of new joints, etc. Guy's is a pioneer hospital in possessing an excellent workshop for the manufacture of every form of splint and appliance.

It is in the Orthopædic Department that the principles underlying the mechanical disabilities of the limbs and spine are emphasised and their explanation made clear, and the experience to be gained here is invaluable. The great utility of orthopædic surgery has become evident to very many during the war.

THE MASSAGE DEPARTMENT

The New Department is now in full working order, and patients are treated between the hours of 2.30 p.m. and 4.30 p.m. on Mondays, Tuesdays, Thursdays and Fridays, and between 9.30 a.m. and 12 noon on Wednesdays and Saturdays.

The point of interest to Medical Students is to see the work carried out on patients by Massage and Medical Gymnastics. A large variety of cases are being treated daily, which include fractures, stiff joints, dislocations, nerve injuries and disease, lung and heart disease, congenital conditions and poor development in children, etc.

THE TUBERCULOSIS DEPARTMENT

The Tuberculosis Department is a reference Department for out-patients suffering from diseases of the chest. Patients attend on two days a week,

Thursday afternoons and Monday evenings. For suitable cases arrangements are made for admission to sanatoria. The patients return to the Out-Patient Department after leaving the sanatorium. The Department provides extensive opportunities for studying methods of investigating early and doubtful cases of pulmonary tuberculosis, also for observing special forms of treatment such as artificial pneumo-thorax. A special appointment is now connected with this Department.

THE DEPARTMENT FOR VENEREAL DISEASES

This Department is open from 9 a.m. to 8 p.m. on all week-days, and from 10 to 12 noon on Bank Holidays.

Treatment is carried out for all venereal diseases in women, men and children, and patients may be referred from other departments at any of these times.

Students may attend the male section any evening from 5 p.m. to 7 p.m., and Dressers in the Gynæcological Department may attend the female section on Mondays from 5 p.m. to 7 p.m. or Wednesdays from 2 p.m. to 5 p.m.

Demonstrations are held on Thursdays at 5 p.m. in the Demonstration Theatre in this Department

Dressers are appointed to the Department every three months.

PRACTICAL PHARMACY AND DISPENSING

One of the many important things all medical students must know is how to write a prescription. It may even be necessary for the majority, when qualified, to be able to dispense the same. All students, therefore, would be well advised to acquire as much knowledge of the subject as they can.

The student is taught, practically, how to dispense the different medicinal preparations; he learns to write prescriptions, due regard being paid to doses and incompatibilities.

The course is conducted by the Hospital Pharmacist.

ELECTRICAL AND ACTINO-THERAPEUTIC DEPARTMENT

The treatments carried out in this Department include the following: diathermy, high frequency, the application of the constant, faradic and sinusoidal currents, radiant heat, and static electricity, treatment by the Finsen and mercury vapour lamps and radiotherapy.

A special Department has, for some time, been opened for artificial sunlight treatment.

A large number of cases are treated in the Department: Chronic joint conditions, nerve injuries, wasted muscles, skin diseases such as ringworm, psoriasis, eczema and rodent ulcer. There are also a large number of cases of malignant disease undergoing treatment with X-rays and radium.

FRACTURE DEPARTMENT

This Department deals with all fracture cases which are treated as out-patients throughout; they attend on Thursday afternoons at 1 p.m. The appointment of dresser in this Department is a useful one, and is usually held concurrently with one of the later appointments that a student can obtain. Much experience in the treatment of uncomplicated fractures is obtained; at the end of the afternoon, plasters are applied to or removed from the various patients seen.

6. Books

ADVICE on this matter is extremely difficult to give, for individual needs are almost as varied as the length of individual pockets, and the adornment of a virgin bookshelf is bound to depend on both these factors. Except in the case of certain essentials for routine work, such as the dissecting room manuals, it is perhaps better to postpone the inevitable visit to the bookseller and first to consult the various tutors and demonstrators in the subjects concerned. They will be more than willing to extend any suggestions made under various headings in this issue of the *Gazette*, and their experience will enable them to advise that blend of old and new best fitted to the individual case.

The rapid advance in medical knowledge unfortunately renders the second-hand book almost worthless except in the case of Anatomy, where the advances, though many and real, are not apt to be so revolutionary as in Physiology and Medicine itself. A Physiological text-book probably becomes out of date in less than a year, a text-book of Medicine in two or three years at least, so that in these subjects at any rate recent editions are essential.

All that is most distinctive in current Guy's teaching is to be found in the *Guy's Hospital Reports*, which contains articles written for the most part by members of the Hospital Staff. The unqualified man has the special privilege of purchase at a much reduced price, an advantage that he will be wise not to neglect.

A great number of publishers are responsible for medical books, and a just estimation of the rival claims for their various productions is quite beyond the scope of this article. Mr. Humphrey Milford at the Oxford University Press offers a wide range of medical works of uniform excellence in subject matter, binding and printing. Messrs. Churchill publish Taylor, Gask and Wilson, the new *Recent Advances Series*, and many other well-known works. E. & S. Livingstone, of Edinburgh, present books containing the valuable teaching that emanates from both sides of the Tweed; they also cater for the hard-pressed student in an extensive *Catechism Series*, intended to aid his last-minute revision. Baillière, Tindall & Cox are responsible for the large Rose and Carless and a small synopsis series in their well-known *Aids*. Many splendid books are published by John Murray, Gaber & Gwyer, Ltd., Cassell & Co., Longmans, Green & Co., Macmillan & Co., John Bale, Sons & Danielsson, Edward Arnold, and Constable, while Lewis, of Gower Street, sponsors a number of books having a specialist flavour—such as Rawling's *Surface Markings* and Martindale's *Extra Pharmacopœia*, to select at random. Messrs. Lewis also run an excellent medical circulating library, which should prove invaluable to the student who wishes to dip briefly into all the latest books. This is assisted by reference to their catalogues, which can, if desired, be purchased. Messrs. Foyle, of Charing Cross Road, specialise in second-hand books and also in those on sporting, as distinct from scientific subjects.

Mr. H. H. Grattan, in the Borough High Street, is the official bookseller to the Hospital, and is able to supply most of the books in common demand over the counter; any others he can be relied upon to obtain as quickly as possible.

To the Dental Student

By H. C. Malleson, Esq., L.R.C.P., M.R.C.S., L.D.S.

THE dental student, like his medical confrere, is assured of a warm welcome to Guy's, and, although he soon begins to specialise in the particular branch of surgery he has elected to follow, he will find that their paths are often the same. This will prove of inestimable value to him now and afterwards, it will keep his mind broad, and he will soon appreciate how interdependent are medicine, surgery and dentistry.

There is much to be done before he obtains a qualification, and the new student may be somewhat appalled at the mass of work that is required of him from the various bodies concerned before he obtains a registrable degree or diploma, but steady application on his part will enable him to do all that is necessary in the four years after passing his Pre-Medical Examination. The profession the dental student has chosen is essentially a craft, and it cannot be stressed sufficiently that his success in that career depends almost entirely on his manipulative dexterity, and it therefore behoves him from the beginning to do his utmost to excel in this essential quality.

The academic side of his life at Guy's must, of course, take first place, but recreation is also necessary, and he is fortunate in that at Guy's the Clubs' Union provides him with numerous opportunities for sport of all kinds.

The five years or more at the Hospital, if profitably spent, will be the happiest years of his life—a time to look back upon with pleasure and a time when he will make lifelong friends whom he will frequently meet in after years either as colleagues in practice, in professional societies or in the re-union of old Guy's men.

Guy's is proud, and justly proud, of her students, and it is " up to " them to justify that pride. The Hospital has little use for anyone who lets her down.

The Dental Curriculum

THE Dental Student is supplied at the Medical School Office with the Prospectus, Standing Orders, List of Instruments, Calendar and Clubs' Union Book.

These pamphlets should be carefully read in order that acquaintance may be made with the general arrangements of the School and the scope of the work upon which the student will become engaged.

Notices regarding the time and place of Lectures are to be found posted up by the main entrance of the Dental Department.

Instruments having been purchased at a dental depot, the student should satisfy himself that he has been supplied with all of those described in the Hospital list, and have them inspected by his demonstrator.

It is inadvisable to purchase instruments before they are required. Instruments for prosthetic work are required for the B.D.S. course at the commencement of the second year, and for the L.D.S. course at the commencement of the first year. Clinical instruments are required for the B.D.S. course at the commencement of the fifth year, and for the L.D.S. course at the commencement of the third year.

Among the various depots at which instruments may be purchased are the following: The Amalgamated Dental Co., Broad Street, Golden Square, W.C., and 16, St. Thomas's Street, S.E.1; The Dental Manufacturing Co., Alston House, Newman Street, W.; Cottrell & Co., 15-17, Charlotte Street, W.1; L. Porro, Ltd., 33, New Cavendish Street, W.1.

The course of study for the B.D.S. London covers a period of five years, of which the first year consists of Physics, Inorganic Chemistry and Biology. The second year is occupied with the study of General and Dental Anatomy, Physiology, Pharmacology and Dental Prosthetics. The study of these subjects is also continued in the third year, together with Pathology, Bacteriology and Surgery. Clinical work in the wards, Surgery, Medicine, Anæsthetics, Pathology and Bacteriology, together with Dressership in the Extraction Rooms, Dental Metallurgy and Dental Prosthetics constitute the fourth year's work, and the fifth year is occupied by purely Dental subjects, these being Clinical work in the Conservation Room, Orthodontics, Operative Dental Surgery and Dental Surgery and Pathology.

L.D.S. students who come under the New Regulations must pass the Pre-Medical Examination in Chemistry and Physics before they can commence their four years' course. Subsequently, their first term is devoted to Dental Mechanics and Elementary Anatomy and Physiology, and it is important that the student gets a good grounding in the former at this early stage. During the remainder of the first year the student continues his work in these subjects and takes Part III(*a*) of the First Professional Examination at the end of the period. In his second year he studies Dental Metallurgy and completes his training in Dental Mechanics. In his third term of this year he attends Lectures on Dental Anatomy.

Third-year students for the L.D.S. commence the Clinical courses with a period of probationary work upon the phantom head. The operative course, conducted by a Staff demonstrator, is very comprehensive. It includes most of the operations that the student will subsequently be called upon to perform upon patients, namely, gold and other fillings, crowns, inlays and the treatment of devitalised and septic teeth. These operations upon the dummy form an excellent ground work in operative dentistry.

Thereafter the course of work consists in holding and diligently carrying out the work of the following appointments: *Probationer Dressership in the Conservation Room; *Dressership in the Conservation Room; *Dressership in the Children's Department; Dressership in the Ordinary Extraction Room; Dressership in the Gas Extraction Room; Casualty Dressership; Clerk to Anæsthetist.

A student, apart from those holding the post of Assistant Dental House Surgeon, is not allowed to work in the Conservation Room unless he holds one of the appointments marked *.

The Dental Anatomy and Physiology examination is taken in the second term of his third year.

An optional X-ray course may be taken by the student in his final year.

The time varies, according to whether the course for the B.D.S. or L.D.S. is being taken, at which a student will come into actual contact with Hospital patients, but he should always endeavour to be punctual in his appointments with them. There is nothing more irritating and annoying to a patient than to be kept waiting unnecessarily; it also delavs to a very great extent the easy working of the Department.

Further, the student should remember that the cultivation of a courteous and gentle manner towards all patients will become in the future probably the greatest asset in his private practice.

Dental students will profit by following the practice of the Special Departments of the Hospital, *e.g.*, Eye, Throat, Ear. They will also have numerous opportunities of observing the more remote effects of dental disorders in the General Wards and Out-Patient Department.

Students in difficulties about their work and needing advice are invited to consult the Dean, Sub-Dean, Senior Dental Officer or any other member of the Staff, who will be pleased to do what they can to promote their interests.

*Courses on Gingival Hygiene, local anæsthesia, and fourth year demonstration in operative dental surgery will also be attended.

Guy's Hospital Clubs' Union

THE formation of the Clubs' Union, by the amalgamation of the then existing clubs, took place in the summer of 1891. The object of the amalgamation was to further the interests of the different clubs and societies by their mutual support, and to simplify the collection of subscriptions. By the payment of an annual subscription, at present amounting to 5 guineas per annum, a student obtains the privilege of membership of all the constituent institutions, whereas non-members are excluded from participating in the activities of any.

The affairs of the Clubs' Union is under the control of the Clubs' Union Council, consisting of six Staff and six Student representatives.

The Constituent Institutions are: Association Football Club, Athletic Club, Cricket Club, Debating Society, Dental Society, the *Guy's Hospital Gazette*, Golfing Society, Hockey Club, Lawn Tennis Club, Pavy Gymnasium, Pupils' Physical Society, Rifle Association, Rowing Club, Rugby Football Club, Sailing Club, Students' Club and Swimming Club. The Christian Union, the Guy's Physiological Society and the Guy's Hospital Musical Society are at the moment not affiliated.

The ground of the Clubs' Union is within 15 minutes' run of the Hospital (in this respect we are very fortunate), situated close to Honor Oak Park Station on the Southern Railway (Brighton Section) and close to Crofton Park Station on the Southern Railway (South-Eastern Section). It is nine acres in extent, and is the headquarters of the Guy's Football, Cricket, Athletic and Lawn Tennis Clubs. The Hockey and Junior Rugby Clubs are at the moment provided for at Motspur Park which is easily reached from Waterloo Station. The Golfing Society has privileges at Sidcup, Foxgrove and the West Kent Golf Clubs, by arrangement. The Rowing Club is affiliated to the London Rowing Club at Putney and members are entitled to all the advantages of that club.

Members of the Clubs' Union are allowed to use the Swimming Bath at the back of the Nurses' Home on alternate days, by kind permission of the Nurses, and there is a Fives and Squash Court close to this where privileges are also extended to members, by kind permission of the Superintendent.

THE STUDENTS' CLUB

The Students' Club, perhaps the most important section of the Clubs' Union, is housed in the College, where there is now an excellent Catering Company, open only to members of the Clubs' Union. The Pavy Gymnasium is also housed here, where classes are given in Boxing, Fencing and Gymnastics. The Physical and Dental Societies hold their meetings in the College.

Further information about the different clubs can be found in the Clubs' Union Year Book—obtainable at the Medical School Office, and new students are also advised to consult the notice boards in the Colonnade.

Considerable improvements have recently been affected at the ground at Honor Oak Park. The Grand Stand is capable of seating 800 people and the small stands 100 each. A new hard Tennis Court has recently been put down and is open for general use. A considerable sum has been spent upon thoroughly re-draining and returfing the ground, and it is now in excellent condition

An excellent programme of home matches has been arranged by the Rugby Football Club—*vide* Fixture Cards—and it should be noted that members of the Clubs' Union are entitled to free admission to the ground on these, as on all, occasions, on production of their membership cards.

For many years it has been our hope to effect a reduction in the subscription fees, but when the many privileges are considered, the fee is only moderate. Improvements to the Pavilion have been recently carried out, the ground floor has been completely reorganised, and there are now excellent facilities for changing and baths.

Rugby Football Club

WE start the season 1932-33 with a great feeling of optimism—even more than usual. This year we are holders of the Inter-Hospitals Challenge Cup again, a thing on which to congratulate ourselves, as it is the 25th time the Hospital has held it—this being more than twice the number of times any other hospital has won it. There seems no real reason why we should not keep it this season, as we have the makings of a very strong team; the reason that we, along with most of the other big London hospitals, heartily deprecate the awarding of games scholarships to attract good players is based on stronger grounds than the fact that we can always field a first-rate rugger side. Besides winning the Cup, the team did well in Club rugger, beating several of the very best sides in England; but the fact remains that sometimes the standard of play fell

away for unaccountable reasons, and we hope that this year's team will not be quite so temperamental.

We may yet lose several very good men whom it will be difficult to replace. R. A. P. Hogbin, one of the best forwards and one who, by his place-kicking alone, last year added more points than any other player, will, we hope, still play. Windsor Lewis, captain for the last two years, has, unfortunately, resigned, but it is highly probable that he will still manage to turn out; otherwise the loss to the Hospital is unrealisable. He made the ideal skipper, both on and off the playing field, and it was in no mean part due to him that the Cup is with us once more. There is also the chance that J. S. Batchelor will find his shoulder and new appointment not enough to keep him out of the game; the pack will be very different if he does not play.

But we have a good many old Colours still, and in our new Captain, T. Morgan, we have an able follower in Windsor Lewis's footsteps. He will make a most efficient and congenial skipper, as well as a first-rate leader of the pack. We wish him the best of luck in his new and responsible post. As Vice-Captain, J. E. Giesen will lead the back division, where we are fortunate enough to have nearly all last year's players back, and with P. C. Alexander, the new Hon. Secretary, and Windsor Lewis playing up to form, we should have an even more brilliant line than before. The several vacancies left in the team we hope will be filled by new talent forthcoming early in the season, so that there will be a chance to settle down better and quicker than last year; this applies especially to the pack, and it is hoped that there will be many keen and hard-working men in the junior teams for the Captain to call on if necessary.

This season we can announce with great jubilation that the pavilion at Honor Oak Park has been rejuvenated; it will be a tremendous improvement, and the two most important factors in any such building, the baths and the bar, have at last been made large enough (it is hoped) to cope with the demands.

For the junior teams Motspur Park is a great success, and in providing a home ground has given them an opportunity to increase their fixture list and, we hope, their members' numbers. There are five regularly playing teams and the Nomads, these providing games for those who play seriously, those who play purely for exercise, and those who take rugger as an ideal thirst-maker. There ought to be enough players in the Hospital to fill these teams easily and avoid the necessity of scratching games owing to more senior teams drawing on the resources of lower ones; this could be done if all three types of players were ready, when necessary, to move up or down the scale of teams. The junior XV's did very well last season, and we hope they maintain this standard again.

This year we are fortunate in having as President Mr. C. H. Fagge, and as Vice-President Mr. P. Turner, both of whom we sincerely hope will find time to watch our matches in London. We have more home matches this season than last, and it is to be hoped that the ground at Honor Oak Park will stand up to them all.

We wish all XV's, and especially the 1st, the very best of seasons.

Association Football Club

THE season for 1931-32 was not as satisfactory as the previous season for two reasons. The first, and more excusable, was the loss of the Senior Cup to University College Hospital, who defeated the 1st XI in the Semi-Final in a rather questionable game; as a consolation, however, the 2nd XI cheerfully continues to win the Junion Cup year after year. The more unsatisfactory part of last season's play was the slackness of members of the 1st XI. Although the team never settled down as a whole, perhaps due to the powers above being unable to make up their minds, it is a lamentable fact that only five members turned out in more than half the number of games played. This contrasted markedly with the keenness of the two junior teams. We regret that some of our more talented players see fit to play for other teams.

At the Annual General Meeting we greatly regretted the resignation of Mr. Fagge, who has been our President for many years, and we should like to take this opportunity of thanking him once again for the great interest he has shown in coming down to Honor Oak Park on innumerable occasions to encourage the team.

This year we have to thank Dr. Ryle for consenting to become President, and Messrs. Hughes, Ogilvie, Slesinger and Dr. Conybeare, Dr. Douthwaite and Dr. Witts as Vice-Presidents of the Club. S. E. Osborne has been elected Captain, L. E. Marshall Vice-Captain, and L. Cosin and J. H. Bartlett as Secretaries.

Although the number wishing to play soccer in the coming season has exceeded expectations, there is still ample room for new players. Every new player who puts his name on the list at that end of the Colonnade nearest the Park is assured of an early trial in one of the teams, but we would urge the importance of repeatedly looking at the lists put up two or three days before the date on which matches are played. This can be ascertained from fixture cards to be obtained from the secretaries. A list of reserves will be put up in

conjunction with the 3rd XI, and the secretary concerned (J. H. Bartlett) will be grateful if any of those wishing to play would tick off as soon as possible after the exposing of the notice, as it constantly occurs that one or more players find themselves unable to turn out just before the match. When they have ticked off they should scan the lists occasionally to ascertain whether reserves have been included or players promoted to higher teams.

This season any player who has not signified his intention by noon on the day preceding the match (*e.g.*, Tuesday at 12 noon for a Wednesday game) will have his name replaced by that of a keener player. This rule has had to be made owing to the great amount of work which has previously been placed upon the unfortunate secretary.

A new departure this season is the playing of friendly matches with most of the hospitals we would otherwise only play in Cup Ties.

We confidently anticipate a very successful 51st season for the Guy's Hospital Association Football Club.

L. COSIN,
Hon. Secretary.

Hockey Club

THE strength of the Club has been sadly depleted by the loss of six of last year's regular players, and new talent has yet to show itself, but under the able captaincy of C. A. Clarke all things are possible, and we are looking forward to a very successful season. In this we hope that the weather will be kind to our ground, which at the moment is in excellent condition.

A practice game has already been played and some very good fixtures have been arranged, including Bournemouth, Aldershot Command and the Royal Navy, Chatham.

It is sincerely hoped that anyone who is keen on Hockey will get in touch with the Secretary, and particularly any who have been at Guy's for some time but who have not yet turned out for us.

A. G. RICHMOND,
Hon. Sec.

Sailing Club

THE season's racing at Burnham, for the Harvey and Bourne Cups, has not been marked by the success of the Guy's dinghy; this may be attributed to the fact that it has rarely started. Both cups have been won by St. Bartholomew's. It is unfortunate, when given such admirable chances for racing (for the number of competing boats and the keenness of the races have been above the average), that so few new members have joined the Club.

This year Mr. Ogilvie has made it possible for members to race also in the International 12 sq. metre class, where the standard of sailing and tactics is high and there has been excellent sport.

Mr. Doubleday has generously presented a cruising challenge cup, which is to be awarded annually for the best log of a cruise in which the yacht has been commanded and navigated by a member of the Club. As there would not be sufficient competition amongst Guy's men alone, the contest has been opened to all members of the U.H.S.C.

This year three yachts have sailed under the U.H.S.C. bargee in command of Guy's men. One cruised for a fortnight, from the Thames up the East Coast; one from Burnham to Brixham; the third sailed from Plymouth to Belle Ile in the Bay of Biscay and back to the Solent, a distance of 600 miles.

Several members have spent week-ends with Dr. Brydone on his 16-ton cutter in the Solent.

The U.H.S.C. has sailed matches against Cambridge, Oxford, the Royal Engineers, and Ranelagh S.C. R. A. Andrews, F. J. Curtis and G. B. Palmer, from Guy's, have been included in the teams.

St. Bartholomew's won the Sherren Cup, winning on points in two good races in which eight boats started.

The Ogilvie Cup for single-handed sailing will be competed for on October 1st.

Rowing Club

THE Guy's Hospital Rowing Club had a very satisfactory season last year. Owing to the increased numbers and extraordinary enthusiasm of its members we were able to turn out, for the first time, two eights, both of which were entered for the Head of the River Race, and the performances, particularly of the 2nd VIII, were very promising.

Thanks to the generosity of the Clubs' Union we were able to purchase, in conjunction with the London Rowing Club, a clinker four, which helped us to cater for our less experienced members, and the performance of the junior four in the Inter-Hospitals Regatta is worthy of special mention as being the finest race I have ever seen.

We are also indebted to the Clubs' Union for a new set of oars for the 1st VIII.

A change in the style of rowing from Orthodox to Fairbairn made a remarkable difference in the standard of rowing in the 1st VIII, and I think it

is fair to say that the VIII entered for the Inter-Hospitals Regatta was one of the most promising the Hospital has produced for some years, and the Club is very unfortunate in losing D. St. J. Gogarty as coach.

I should like to take this opportunity of inviting any members of the hospital, new or old, who are in any way interested in the Rowing Club to attend our general meeting at the beginning of October.

The Guy's Hospital Rowing Club is affiliated to the London Rowing Club. The Club caters for every type of rowing man, however inexperienced, and I should like to point out to people interested that a member of the Hospital Rowing Club is a full member of the London Rowing Club and may use their sculling boats, tank, etc., or row for them if he wishes.

A. B. W.

Golfing Society

THE standard of golf at the hospital is better now than it has been for years; three years ago a man with a handicap of 12 found himself included in the Hospital side. During the next two months, when the Inter-Hospitals' matches are played, we shall be turning out a side with handicaps of six and under. This year we have got an excellent chance of winning the Inter-Hospitals' Cup, and, if we are successful, a long-cherished ambition will have been accomplished, as the hospital have never yet held this trophy. Last year we were unfortunate in being knocked out by St. Thomas's in the first round. During this last term the Society have played six matches, of which four were won, one was halved and one was lost.

It has been decided to discontinue having the usual monthly Bogey and Medal Competitions, owing to the large increase of entries which have been received during the last 12 months. In their place, on a date to be decided by the Committee, a whole day's golf will be arranged, when the money usually spent on the spoons will be utilised in providing the winners of the different events with prizes. In this way, it is hoped that a large entry for each event will be forthcoming.

The Hospital is affiliated to Sidcup Golf Club, where they allow us to play at reduced green fees—2*s*. 6*d*. per day on week-days and 5*s*. per day at week-ends. The course is within easy reach of the hospital, 20 minutes by train from London Bridge and three minutes walk from Sidcup Station; a cheap return fare is issued at 1*s*. 6*d*. Handicaps can be obtained by sending three cards to the Honorary Secretary.

F. J. R. STONEHAM.

The Pavy Gymnasium

THE Gymnasium, founded by the late Dr. F. W. Pavy, is open to all members of the Clubs' Union, and here instruction is given in boxing, fencing and gymnastics. Boxing is held on Tuesday evenings at 4.30 p.m. under Alf. Hewitt, Fencing on Thursday at 4.30 under Capt. Pinkerton and Mr. Cassford, and Gymnastics on Friday at 4.30 under Mr. Simmons.

New members of the Clubs' Union are invited to join any of these classes held in the Gymnasium. No previous experience is necessary, and in the beginning no equipment is required beyond a pair of rubber shoes and an able body. Members should attend in the Gymnasium at the times specified above.

Any further information may be obtained from the Captain, D. H. Irish, or the respective secretaries—J. R. Forbes (fencing), R. A. Johnson (boxing) and L. J. Bailey (gymnastics).

The Christian Union

THE Guy's Hospital Christian Union dates back to 1849, when, as the records state, "a teacher at Guy's and a lecturer at St. Thomas's (Drs. Habershon and Gladstone) became deeply anxious for the spiritual welfare of the students under their care, and determined to do what they could to promote it. A Bible Reading, which was shortly afterwards set on foot at Guy's, was the result. Some little time after this . . . Dr. Golding-Bird, assistant physician at Guy's, laid the matter to heart. . . . Two months later the Christian Medical Association was formally inaugurated. In October, 1855, its first general meeting was called."

The Union has continued ever since under various names, with a view "to establish, revive and maintain meetings for the study of God's Word and prayer at each London Hospital" (1874). Meetings are now held weekly on Mondays at 4.45 p.m., Fridays at 5 p.m., in Classroom 1, and Tuesdays at 1 p.m. in the Chapel.

There will be a tea for men coming to Guy's this year, at which any other member of the hospital is invited, on Tuesday, October 11th, in the Medical School Committee Room at 5 p.m., after which two or three Guy's men will explain what we stand for.

Any further information can be obtained from Mc'Evoy and Hughes in the Medical School, de Vere Green in the Dental School, and Spink in the Wards.

The Pupils' Physical Society, 1932-33

Hon. President.—John Fawcett, M.D.

Hon. Vice-Presidents.—Sir William Hale-White, K.B.E., M.D.; Sir Wm. Arbuthnot Lane, Bart., C.B., M.D.; A. P. Beddard, M.D.

Presidents.—C. G. Baker; W. H. Bradbeer; J. C. Colbeck; E. H. de B. Crowther Smith; K. J. Gilchrist; A. J. Grace; M. J. McArdle; B. McArdle; F. Nicolai; W. H. Owles; R. A. Ratcliffe; S. M. Silverstone; S. Wass.

Hon. Secretaries.—D. W. C. Northfield, M.B., F.R.C.S., L.D.S.; R. S. Bruce Pearson, M.B., M.R.C.P.

THE Pupils' Physical Society has existed in its present form since 1830. Its origin is even older and more honourable since it continues the traditions of the Physical Society which was founded in 1771, and was one of the oldest medical societies in London.

The Society meets, as far as possible, on alternate Thursdays during the winter months. Its object is the demonstration of cases of interest and their subsequent discussion, the showing of pathological specimens and the reading of papers on medical subjects. It is primarily and essentially a students' organisation; all members of the Hospital are *ipso facto* members of the Physical Society. The chair is taken by one of the senior students or house officers; the cases are usually shown by the ward clerk in charge. The discussions are open to all.

Apart from the immediate interest of the meetings, their value from more than one point of view is great. The cases themselves are collected from all over the hospital and are always of great interest. Many are rare cases which one would seldom have the opportunity of seeing elsewhere. In addition, the value of climbing to one's feet and attempting to formulate one's doubts or one's opinion cannot be over-estimated. It is only then that the haze which envelops the facts that we had imagined to be nicely packed in mental pigeon-holes becomes suddenly manifest. The actual demonstration of a case often involves much forethought and hard work on the part of the demonstrator; it may mean the examination of blood, sputum, the searching out of reports on pathological investigations, and often the hasty perusal of the literature in the Wills Library. Such ardour is, like the quality of mercy, twice blessed—it blesses the demonstrator and his audience. The demonstrator, indeed, is doubly blessed, since he gains in knowledge and self-confidence as well.

There are various prizes awarded for the best paper read, the best demonstration, and the ablest in discussion. Finally, the Treasurer's prize of £10 is offered for the best paper written on a subject chosen at the beginning of each season.

The opening address in the coming session will be given by Mr. Eason and will be of great interest both to those completely ignorant of medicine and those who feel that they can learn no more. The programme as a whole is likely to be of such a high standard that it would be invidious to differentiate.

Programme, 1932-1933.

1932. Thurs., Oct. 6	8 p.m. Opening Meeting. Paper by Herbert L. Eason. "Specimen 1864 in Guy's Hospital Museum, the calculus which gave rise to the famous libel action, Guy's Hospital *v. Lancet*, December 13th, 1828; with an account of the operation, the post-mortem examination, and the libel action." Chairman: Dr. Fawcett.
Thurs., Oct. 20	8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Bradbeer.
Thurs., Nov. 10	8 p.m. At Guy's Hospital, Joint Meeting with Medical and Physical Society of St. Thomas's Hospital. Chairman: Mr. Grace.
Thurs., Nov. 24	8 p.m. Paper by Mr. Wass. "Effects of Trauma on the Brain." Chairman: Mr. Colbeck.
Thurs., Dec. 8	8 p.m. Clinical and Pathological Meeting. Chairman: Mr. K. J. Gilchrist.
1933. Thurs., Jan. 5	8 p.m. Paper by Dr. McNee. "Some Therapeutic Problems." Chairman: Mr. Crowther Smith.
Thurs., Jan. 19	8 p.m. Clinical and Pathological Meeting. Chairman: Mr. B. McArdle.
Thurs., Feb. 9	8 p.m. Joint Meeting with Guy's Hospital Physiological Society. Paper by Mr. Pantin. Subject to be arranged.
Thurs., Feb. 23	8 p.m. At St. Thomas's Hospital, Joint Meeting with Medical and Physical Society of St. Thomas's Hospital. Chairman: Mr. M. J. McArdle.
Thurs., Mar. 2	8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Baker.
Thurs., Mar. 9	8 p.m. Paper by Mr. B. McArdle. "Obesity." Chairman: Mr. Silverstone.
Thurs., Mar. 30	8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Ratcliffe.
Thurs., April 13	8 p.m. Reading of Treasurer's Prize Essay. "Constitutional and Environmental Factors in Disease." Chairman: Mr. Nicolai.

The Physiological Society

THE Physiological Society was founded in 1901 by Professor Pembrey, who is still its President, essentially as a students' society. Meetings take place fortnightly during the Winter and Spring Terms, at which papers on physiological subjects are read by its members. Each paper is followed by a discussion. The meetings are preceded by tea in the Experimental Physiological Laboratory at 4.15 p.m.

The term "physiology" is employed in its widest sense to embrace much of its parent science, biology, and to include those social applications which are of such considerable importance to-day. Thus the first-year man, as well as those studying physiology, will find much to interest—and to amuse—since, to a great extent, the papers and the discussions centre on general principles rather than on the finer points of physiological research.

The introduction of theology into the papers and the discussions is forbidden by the rules of the Society, and political questions are avoided.

Combined meetings are held during the year with the Physical Society and with University College Physiological Society, the latter usually taking the form of a debate.

The President's Prize is awarded annually to the author of the best paper of the year.

W. N. M.

Guy's Dental Society

President.—F. S. Warner, Esq.

Vice-Presidents. — Messrs. Hooper, Bulleid, Lloyd, Herbert and Pritchard.

Hon. Secretary.—L. G. Lyle.

Hon. Treasurer.—J. A. G. Starnes.

Dental Correspondent.—J. W. Hallam.

Past Secretary.—E. Matthews.

Committee.—Messrs. Copley, Walsham and Alexander.

THE Society was founded in 1895, and since its inauguration it has rapidly advanced both in size and in its activities.

It is open to all Dental students, and all new students will be welcome at the opening meeting, when Mr. Warner will give his presidential address.

The papers read during the last session were :—

"Dentistry as it Appears to the Student," by Mr. F. J. Marden and Mr. M. W. Pilcher.

"A Tour of Dental Schools in Scotland," by Mr. H. H. Kenshole.

"Gross Deposition of both Salivary and Seruminal Calculus," by Mr. C. de Vere Green.

"The Fused Porcelain Inlay; its Uses and Construction," by Mr. J. G. Spiller.

"The Dental Investigation Committee and its Work," by Mr. R. N. Johnson.

"Some Points on the Prophylactic Treatment of Dental Caries," by Mr. C. W. Shuttleworth.

"Some Points on the Prophylactic Treatment of Pyorrhœa," Mr. I. D. Williams.

"Cleft Palate," Mr. G. B. Hunter.

"Dental Work in America," by Mr. W. E. Herbert.

"Present-day Dental Practice," by Major S. H. Woods, O.B.E.

"Muscle-trimming Impression-taking Technique," by Mr. B. Machado.

"The Great Adventure," by Mr. R. Cutler.

The 33rd Annual Dinner was held at the Trocadero Restaurant on Saturday, February 27th, when 246 members and guests were present.

It is hoped that all members, whether they be past or present, who are desirous of reading a paper or casual communication to the Society, will inform the Secretary of their wish, and he will give them every facility in arranging both times and notices.

Unfortunately, the Minute Book has been mislaid, and should any reference to papers have been omitted, it is because those entered are done so entirely from memory.

J. W. H.

The Debating Society

THIS Society was once one of the most vigorous and flourishing institutions in the social life of the hospital. Of recent years, however, there has been a long lapse in its activities. Towards the end of last spring term the Society, fortunate in having Dr. Ryle as

chairman, held a successful meeting which marked a healthy resurrection from its 13 years' demise. It is hoped, then, during this and next term, firmly to establish its revival.

As a constituent of the Clubs' Union the Society is open to all members of the latter without further fee or ceremony. A welcome is accorded to everyone who might be interested in its discussions. It may be seen below that a varied programme has been arranged, conducive to freedom of speech upon any number of subjects other than "shop." Opportunity is offered for practice in public speaking, so that members may master the art of self-expression in a friendly atmosphere before a not too critical audience.

Meetings are held in the "spit" on Thursdays at 8 p.m. at least once a month, and, for those to whom this might be a strong recommendation, it might be mentioned that eloquence is rewarded —and boredom compensated—with coffee and biscuits.

The first meeting of the session is to be held on Thursday, October 13th.

Programme, 1932-33

October 13th.—Motion: "That this house is of opinion that the Cult of the Nude is a movement deserving our encouragement."

November.—Ladies' Night; a joint meeting with the Nurses' Debating Society and Lady Visitors. Motion to be posted later.

December.—Motion: "That this house looks with disfavour upon the medical education given by the popular press."

January or February.—The Debating Society of Gray's Inn is being approached with a view to arranging a joint meeting. Motion to be announced later.

January or February.—Ordinary Meeting. Motion: "That this house deplores the film 'star.'

March.—Motion: "That this house is of the opinion that the surgeon should be paid no more than the carpenter."

Extra meetings on intermediate dates.—Motions

(*a*) "That this house deplores the practice of sports which necessarily endanger life."

(*b*) "That this house would rejoice to see the Press Lords led gently away to an asylum for their kind."

Guy's Hospital Chapel

THE Chapel at Guy's certainly does not thrust itself ostentatiously upon the notice of the newcomer, but it exists nevertheless. Those who boldly open the door under the clock in the front square will find it. It is embedded in Matron's House, which flanks it on either side and covers the roof as well. It is square, without an apse, and with galleries round three sides, being technically described, we believe, as a "drawing-room Chapel of the Georgian Period." An impression of a sort of apse, indeed, has been artificially and undesignedly created by the erection of an organ in one corner and a vestry in the other. This has the disadvantage of partially obscuring the design of the Colonnade, which was clearly intended to be a feature of the building. It is possible that these encroachments will be removed in the execution of a scheme of redecoration and improvement which is afoot. The stained glass windows commemorate William Hunt, the founder of the Medical Wards. The mosaics and panels are a memorial to all those who have died in the Medical Service of the Hospital since 1867.

Various others are recalled by brasses in various parts of the Chapel and in the Lobby. The most interesting of these are those of W. E. Gladstone, a Governor for 63 years, Sir Astley Cooper and Sir William Gull. But the best known feature of our little Chapel is the really noteworthy monument to our Founder, Thomas Guy, which faces the altar. Here is Guy in Court dress of the period relieving a suffering man, while in the background is to be seen an actual model of the Quadrangle and Colonnade Steps outside, with porters engaged in stretcher bearing. The inscription on the monument is well worth studying as a good example of the somewhat florid testimonials which characterised such literature in the eighteenth century, and as a record of certain facts apt to be forgotten.

An extensive crypt contains the Founder's tomb, for the remains of Thomas Guy were translated across the street from their original resting place beneath St. Thomas's, where they lay from 1725 to 1780. Among the other tombs in the crypt are those of William Hunt, Sir Astley Cooper

and certain Governors, Surgeons and Physicians of bygone days. Of those who served the Chapel the greatest name is that of Frederick Denison Maurice, Chaplain 1836-46, portraits of whom will be found in the Lobby. A list of the services in the Chapel will also be found there, and the Chaplain is always glad to supply further information. Needless to say, the Chapel and its Services are always open to all members of the Hospital and Schools.

Officers Training Corps

THE Medical Unit of this corps is formed of medical and dental students from the various London hospitals, and is officered entirely by members of the Staffs and senior students.

The Unit consists of the four field companies of two field ambulances, No. 2 Company being formed solely by the men of Guy's.

Other Units are Infantry, Engineers, Artillery and Sound-ranging, comprised of men from the various colleges and teaching institutions of the University.

The training of the Medical Unit is devoted to the care, transport and disposal of sick and wounded, primarily from a military view-point, but this knowledge is found to be a great asset to the qualified medical man in everyday civil life, more particularly if he has to train the police and St. John's personnel in ambulance and stretcher drill, First Aid and bandaging, etc.

During the year a cadet has to attend 15 parades, which consist of lectures held weekly at the hospital, attendance being in mufti. A recruit must put in 30 parades in his first year unless he has already served in a Junior O.T.C., but he should realise that the work in the two Divisions is as unlike as are chalk and cheese. Junior Division routine is aimed at instilling discipline, while work in the Senior Division is aimed at advanced interesting training based upon the former.

At Whitsuntide there is a voluntary week-end camp at Princes Risborough, Bucks, adjoining the Chequers estate, attendance at this counting 10 parades.

Presence at annual camp for 10 days out of the fortnight is compulsory, except for certain valid reasons, and camp is always spent at some pleasant seaside resort, usually Folkestone or Eastbourne.

Unfortunately, this year we lose Col. P. H. Mitchiner, K.H.S., T.D., who has been in command of the Unit for the past eight years, and who previously had held every rank in the Unit from cadet and sergeant-cook, and commanded field ambulances with great distinction throughout the Great War.

This summer, as a result of the ban placed upon Territorial camps for reasons of economy, we were able to have only a voluntary camp of one week's duration at Princes Risborough, which was much enjoyed by a number of men from the hospital.

It has been arranged that camp shall be held at Eastbourne next year, from July 16th to 30th, and it is hoped that Guy's will send down some keen recruits.

Any information will gladly be given by Mr. H. H. Kenshole, of the Dental Department, from whom engagement application forms may be obtained.

Anyone who likes a strenuous fortnight's holiday in the summer at practically no cost, and who wishes to meet socially his colleagues from other hospitals and colleges, should join No. 2 Company of the Medical Unit, U.L.O.T.C.; he will not regret it.

H. H. KENSHOLE,
Lieut. R.A.M.C. (T.A.),
O.C. No. 2 Co. (Guy's),
Adjutant, Medical Unit.

Hospital Information, etc.

Papers by Guy's Men

L. J. Witts. Discussion on megalocytic anæmias of tropical and non-tropical countries. *Proc. R.S.M.*, 1932, xxv, 1703.

W. M. Mollison. Otitis media in sucklings. *B.M.J.*, 1932, ii, 581.

P. M. F. Bishop. Zondek-Ascheim reaction and early diagnosis of pregnancy. *Clin. J.*, 1932, lxi, 452.

EDS. { E. S. / M. McA.

GUY'S HOSPITAL GAZETTE

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PASSIM

IT was only a few weeks ago when casting about in our minds for some subject on which to base our fortnightly "Passim" and when there seemed no glimmer of intelligence with which to entertain our readers that it was suggested we should do our part in condemning what appeared even to us to be the all too prevalent habit of smoking in the presence of patients.

However, by the grace of God other material was forthcoming, and so, though the article was written, it never saw the printer's office, and for which in the light of recent events we are truly thankful. But now that official notice has been taken and smoking in certain parts of the Hospital has been definitely tabooed, we feel justified in adding our censure to this practice.

The place which suffers most from this hardship is, of course, the Front Surgery. Dressers who work here for six hours with only an interval for tea and O.P.O.'s who are on duty for ten hours feel it most acutely. When business is slack, as it so often is on Sunday afternoons particularly, the need for nicotine becomes most acute, and we should like to take this opportunity of making a plea for a long-felt want.

Would it not be possible to provide a room, even though it were not much bigger than the porter's lodge, where the O.P.O.'s and dressers, screened from the eyes of patients, might profitably spend their spare time with books and tobacco? Obviously such a room should be on the ground floor, and though it might have been more easily constructed when the new Out-patient Department was first built, yet surely it is still possible.

▭

IF Rumour should happen to be correct—and in this case, from the preparations which are already being made, it seems not unjustifiable to hope that it is at least founded on fact—Guy's will shortly be the proud possessor of a standard squash court.

If this is so, it will indeed be a boon, for although the present erection provides a good game and strenuous exercise which certainly are the essentials, yet its dimensions can scarcely be described as "standard," and although from its very oddities a new game peculiar to Guy's has arisen, yet it has its disadvantages. It means that the game has to be confined to those who use our court, and we are quite bewildered when challenged to play a match in a strange one, and likewise we are debarred from repaying the hospitality shown us by inviting opposing teams to Guy's.

May we express the hope that this rumour is not without foundation and will shortly become a concrete fact!

▭

THE Guy's Hospital Ladies' Association has decided to endow a bed in Victoria Ward in memory of the late Mrs. Philip Turner, and in appealing for donations the Committee feel that there must be many who will be only too glad to pay some tribute to one who, for many years, was such an active and valuable friend to the Hospital and for nine years was Secretary of the Ladies' Association. Donations may be sent to Mrs. Rowlands or to Mrs. Davies-Colley.

▭

STIMULATED by the success of its last dance, the Guy's Employees' Association has organised another dance to be held at the Bridge House on Tuesday, October 25th. The tickets are 4*s*. each, including, of course, refreshments, and for this the Association promises to provide an enjoyable evening for all Guy's people and their friends.

▭

TWO new appointments have recently been made to the Staff. Mr. GRANT MASSIE, who has been Assistant Surgeon to the Orthopædic Department, now leaves that post to become Assistant Surgeon on the General Surgical side, and Dr. Louis Forman has been appointed Assistant Physician to the Dermatological Department. These appointments have met with universal approval and satisfaction, and we heartily welcome them.

Obituary

SIR CHARTERS JAMES SYMONDS, K.B.E., C.B., LL.D., M.D., M.S.(Lond.), F.R.C.S.(Eng.)

I HAVE been asked to write an obituary notice of the late Sir Charters Symonds for publication in the *Gazette*.

Whilst fully appreciating the honour of being asked to undertake this task, I am conscious of the fact that there are others who could have done it very much better than myself. However, there is this justification of my acceding to the request. I think few, if any, old Guy's men could have been associated with Sir Charters, both professionally and socially, as much as I have been. First, I had the privilege of working under him whilst a student. I was dresser to him whilst he was assistant surgeon, and secondly, since I started private practice in November, 1888, and until he retired from active work, the major part of the surgical work in which I required help, whether consultative or operative, was done with Sir Charters. I cannot hope to compete with the full and very fine tributes that have been paid to his memory, to the great work he achieved in his profession, or to his splendid character that have appeared in the *Times* and other general, as well as the principal medical, journals, but I shall endeavour to write about Symonds as I knew him myself.

I am not going to discuss to any great extent his great record as a student, the honours he achieved at the London University and the College of Surgeons, the appointments he held at Guy's and other hospitals, his work during the war and after, as they have been so fully described in the obituary notices to which I have referred, and, probably, all whom they would interest have already read them; but for the benefit of those who may not have done so, I am simply giving a short summary of them :—

Matriculated at the London University when seventeen.

Entered Guy's as a student in 1870.

Qualified M.R.C.S. in 1875; incidentally he took the Treasurer's Gold Medal for Surgery the same year.

1876—appointed Junior Demonstrator in Anatomy.

1877—Senior Demonstrator.

Took the M.B. (Lond.), First Class Honours in Medicine, Forensic Medicine, Obstetrics, Gold Medal in Forensic Medicine and Obstetrics.

At the B.S. (Lond.) (the same year), First Class Honours and Gold Medal in Surgery.

1878—took the M.D. (Lond.).

Held consecutively the appointments of Resident Obstetric, House Surgeon and House Physician at Guy's.

1879—appointed Surgical Registrar.

1880—took the M.S. (Lond.).

1881—took the F.R.C.S. (Eng.).

1882—appointed Assistant Surgeon to Guy's Hospital and placed in charge of the Throat and Nose Dept., which was started as a separate department that year. He held this appointment for 20 years, until he was promoted to the senior Staff.

From 1882 to 1888—on the Staff of the Evelina Hospital for Children.

Appointed full Surgeon to Guy's in 1902.

1912—retired from active Staff; appointed Consulting Surgeon to the Hospital.

After his retirement from Guy's he attended fortnightly at the Lambeth Hospital, where he continued giving clinical teaching. This was interrupted during the war, but resumed in 1920 and continued regularly until a few months before his death.

He was Consulting Surgeon to a number of charitable institutions in and near London.

Held office in many medical societies, President of Hunterian Society, Laryngological Society, the Medical Society of London, the Clinical and Proctological Sections of the Royal Society of Medicine.

He was Lettsomian Lecturer in 1910.

Bradshaw Lecturer in 1916.

Hunterian Orator in 1921.

From 1907 to 1923—Member of the Council of the College of Surgeons; Vice-President in 1916.

At annual meeting of the British Medical Association in Birmingham in 1890 was Vice-President of the Sub-section of Laryngology and Rhinology and of corresponding section of Oxford meeting in 1904.

His military appointments and duties were as follows :—

Six years Surgeon of the King's Colonial Yeomanry (afterwards King Edward's Horse).

On creation of Territorial Force in 1908 became Major on staff of the 2nd London General Hospital.

War Services.

Called up in August, 1914, and assumed active duties with charge of wards.

1915—appointed Consulting Surgeon to the Eastern Command with rank of Lieutenant-Colonel, and later in same year sent out as Consulting Surgeon to the Forces in the Mediterranean with rank of Colonel, first to Malta and in 1916 to Salonika, where he assisted in setting up equipment for 30,000 wounded and supervising surgical work.

July, 1916—invalided home, mentioned in Despatches and received the C.B. (Military). Shortly afterwards posted to the Southern Command as Consulting Surgeon at Netley and supervised the Surgical work from Portsmouth district.

July 1st, 1919—after nearly five years of war service the honour of knighthood (K.B.E. in the military division) was conferred on him. After retirement from active practice, became Treasurer of the Royal Medical Benevolent Fund, Chairman of the Invalid Children's Aid Association, Chairman of the Children's Hospital at Hampstead.

He was for some years a member of the Advisory Committee to the Home Secretary on Vivisection Licences.

In 1929 the University of New Brunswick conferred on him the honorary degree of LL.D.

Charters Symonds was born at Dalhousie, New Brunswick, on July 24th, 1852.

His ancestor, William Symonds, left London in 1635 in the *Safety* and settled in Woburn, Massachusetts. The move to New Brunswick was made by James Symonds, a notable man of his time and one of the first settlers in St. John in 1764.

Charters Symonds came to England with his widowed mother when 17 years of age to begin the study of medicine at Guy's Hospital. I have already given a record of his life whilst a student at Guy's, after he qualified, as Assistant Surgeon, Surgeon and Consulting Surgeon to Guy's, and his other appointments, his war services, and the offices he held in different medical societies to which he belonged.

What a record! Whichever branch of the profession he might have chosen he certainly would have achieved great success, but, thank God! he took the path of surgery. His wonderful achievements in abdominal and throat surgery have been mentioned in many of the obituary notices. He was the first surgeon to remove the appendix. I believe I am right in saying that he was the first (at any rate the first British) surgeon to extirpate the larynx. I remember about the time I dressed for him as assistant surgeon he was experimenting with Symonds's tubes for the relief of stricture of the œsophagus due to malignant disease. These tubes were made of rubber and passed by means of a suitable holder through the stricture, and left *in situ*. The upper end of the tube had a silk cord attached which passed out of the mouth, and was fixed round the ear so that the patient could swallow food in the ordinary way. It was only applicable to cases where the growth was well below the larynx and well above the cardiac end of the stomach. Whilst I was acting as his dresser, one of the first patients on whom these tubes were used died. I assisted at the post-mortem. The patient's life was certainly prolonged by their use, and for a time he put on flesh and was saved the discomfort of starvation. I believe these tubes, or a modification of them, are still used in suitable cases. I mention them as an example of Symonds's inventive genius.

I have often sought his help in fractures about the hip joint in elderly people. He greatly favoured the use of Hodgen's splint and extension, as it enabled the patient to be less passive than in a Thomas's splint and to be able to raise and alter the position of the body. In abdominal and other cases needing prolonged rest in bed, he used to encourage patients to move their legs. Rarely would he allow a knee pillow, as he considered the movements of the lower extremities helped the circulation and lessened the chance of thrombosis and embolism. As a consulting surgeon he was always most courteous to patients, whatever their social position, very careful and thorough in making a diagnosis. If in any doubt himself, or the patient was not convinced of the wisdom of the advice he gave, he would unhesitatingly advise an alternative opinion. Rarely was his diagnosis at fault. His powers of diagnosis have been referred to by one writer as "uncanny." I well remember one case, an elderly woman with a large swelling in her neck, which she had been advised to have removed by more than one surgeon. Before consenting to be operated on she consulted the late Sir James Goodhart. He advised her, before deciding, to see Symonds. The latter, after seeing her, examining the swelling, and going most thoroughly into her previous history, expressed the opinion that it probably was a gumma. He placed her under my care and put her on large doses of iodide of potash, which, fortunately, she tolerated very well. The swelling steadily diminished in size, and eventually disappeared entirely. In the autumn of 1927, the daughter of this patient developed a left-sided empyema following an attack of pneumonia. When opera-

tion was inevitable her parents insisted on Sir Charters Symonds performing it. It was by no means easy to localise, but he did so, and operated most successfully on her. Sir Charters was then 75!

Whenever any manipulative examination was necessary, he was always very gentle and careful not to cause the patient any unnecessary distress or pain. His manner was so sympathetic that invariably the patients and their relatives were charmed with him and had complete confidence in his advice. There was nothing he would not do in any case of difficulty or anxiety to assist the medical practitioner. No financial consideration ever influenced him in doing his utmost for any patient. Many patients of mine have been operated on by him gratuitously, because he felt they deserved his charity.

No obituary notice would be complete without some reference to him as a teacher. There may have been surgeons as skilful, some, perhaps, more brilliant, but, in teaching, he was supreme. I would refer those who have not read them to the splendid obituary notice which appeared in the *Times* of September 16th, also to the notices in the *British Medical Journal* and the *Lancet*, and to Dr. Hurst's charming letter in the *Times* of September 17th. His weekly rounds in the surgical wards were attended not only by an exceptionally large number of students, besides those doing appointments with him, but by many qualified men, some working for higher examinations. It was the same when he used to take Out-patients as Assistant Surgeon.

Finally, I must touch on the social side of Sir Charters Symonds's life. After he left St. Thomas's Street he resided at first at 26, Weymouth Street, for many years, where his mother lived with him. For some time after his marriage he continued to reside there, but, eventually, moved to 58, Portland Place, W., where he remained for the greater period of the rest of his medical career. He married, in 1889, Fanny Marie, daughter of Lieutenant-General David Shaw, of the Madras Army, a lady of great charm and beauty. Their family consisted of two sons; the elder, Dr. C. P. Symonds, is well known to you all as physician on nervous diseases, and still adds lustre to the name of Symonds at Guy's. The younger son resides in Brussels and has an important appointment there. I feel sure I am voicing the wishes of all old Guy's men in expressing my sympathy with them in the loss of such a father. For those who, like myself, have seen much of him socially, I need hardly say what an interesting and charming companion he was. In 1929 my wife and I had the great pleasure of entertaining him at Niton, in the Isle of Wight, where we were staying for our summer holidays. He was then 77, but no one would have thought it. He played golf with my family on Chale links, and took long walks with us over the downs above the Undercliff. He would join in our games during the evening with the greatest zest. In fact, you could not have had a more charming guest. My whole family loved him, and he returned their affection and took the greatest interest in their careers.

The last ten years or so of his life were clouded by his wife's sad illness. He went to live at Harrow-on-the-Hill, where he had a charming house and garden. He, personally, looked after and did everything for his beloved wife, who was nursed at his house, "Rowney," Mount Park Road, until she died in August, 1930. It seemed to me that his health began to fail soon after Lady Symonds's decease. I do not know exactly when his terminal illness was first diagnosed, but his health was steadily failing for nearly two years. Nothing could have exceeded the pluck with which he faced this illness, knowing full well himself what the end would be. He absolutely refused to give in. As long as his health permitted him to do so (or rather he considered it did) he continued to attend the Lambeth Hospital, to go to the meetings of the societies he was interested in, and attend to his duties at the Royal Medical Benevolent Society, of which he was treasurer, and the Hospital for Children, Hampstead, of which he was chairman. Sir Charters took the greatest interest in these two charities; as regards the former, he was indefatigable in his endeavours to raise subscriptions and so enable the society to increase its funds and benefits. He practically reorganised the Hospital for Children, Hampstead, which exhibited another trait in his character—his great love for little children, especially the poor and sick. Quite recently he equipped the Gordon Museum with an entirely new system of lighting, which has added so greatly to its comfort.

His funeral took place at Harrow on the afternoon of September 17th and was attended by a large congregation of Guy's men and others, including his former colleagues Sir William Hale-White, Sir Arbuthnot Lane; also Sir Thomas Barlow, with whom he had been closely associated on many committees. A Memorial Service was held in Guy's Chapel on September 19th and was attended by many members of the staff, students, nurses and old Guy's men. At this service Sir Thomas Barlow gave an appreciative address.

So passed from us Charters Symonds, one of Guy's greatest sons, who spent his life in doing good works in the cause of humanity. The

epitaph, "Si monumentum requiris, circumspice," might truthfully be inscribed on his tombstone. I sincerely hope that a fund will be raised by old Guy's men to place some memorial to him within the precincts of Guy's Hospital, where so much of his life's work was performed and which he loved so dearly.

(For the details of the records, the honours he achieved, the dates of his appointments at Guy's, also the offices he held in the different medical societies, his war services, and the records of his ancestors and the date he came to England, I am indebted to the writer of the obituary notice which appeared in the *Times* of September 16th, in the *Lancet* of September 24th, and the *British Medical Journal* of September 24th.)

FRANK KAY HOLMAN.

AN APPRECIATION

LOOKING back over a friendship of 58 years' standing, one's mental vision recalls many scenes which stand out with extraordinary clearness, and my first acquaintance with Symonds was in the capacity of an "extern," and began when I had sent for him as "Junior" to help me out of a difficulty, which turned out to be a very simple matter after all. Instead of the grumble that I might have expected at being sent for at night without any urgent reason, he charmed me on our walk back to the hospital by his sympathetic tone and merely said on parting: "You will know what to do next time, won't you?" Although younger in age, he was senior to me as a student, and on many occasions his help and advice proved invaluable in dealing with difficult cases in the wards.

Of his career as a surgeon others have already described his powers of careful and well-reasoned diagnosis and his originality and boldness in operating. In more than one instance I had occasion to profit by these powers in his skilful treatment of near relatives of my own. About the year 1893 he was one of a group of surgeons and physicians who, being interested in laryngology, gave warm support to the late Sir Felix Lemon in the foundation of a new society, destined to raise that branch of medical science out of the ill-repute into which it had been dragged by unworthy practitioners, to its present position as a full section of the Royal Society of Medicine.

Once again, as its honorary secretary, etc., I had the pleasure of working with my old friend. He held the office of President at the celebration of the hundredth birthday of Manuel Garcia—the inventor of laryngoscopy—and delighted an appreciative audience by his graceful and warm-hearted reference to the debt which the medical profession owed to the venerable guest of the evening.

In succession to the late Dr. Samuel West, Symonds associated himself actively with the work of the Royal Medical Benevolent Fund, which has greatly benefited thereby, and many other charitable undertakings have been stimulated by his sympathetic and active co-operation.

Of his social qualities, quite apart from professional relations, I think it may be said that all who knew him well loved him. Guy's can boast of many social clubs in the past; I think the oldest of them still in active existence is "Our Club," founded by Mr. Davies-Colley in the '60's, presided over for many years by Charles Higgens, and, after his death, by Charters Symonds. May the club long keep green the memory of these three, each of whom in his day did so much to maintain good fellowship among Guy's men!

E. CLIFFORD BEALE.

THE MEMORIAL SERVICE

A SERVICE in memory of the late Sir Charters James Symonds was held in Guy's Hospital Chapel at 2 p.m. on Monday, September 19th, 1932.

The Rev. W. R. Foster, acting chaplain, officiated, the Rev. W. R. Hornby Steer, of Hampstead Children's Hospital, read the lesson, and the following address was given by Sir Thomas Barlow:—

To give an adequate appreciation of Sir Charters Symonds' life and achievement is beyond my power and outside my province. That he was a distinguished all-round hospital surgeon possessed of a broad outlook on surgery and pathology, of a well-ordered extensive experience and much operative ability, hardly needs saying.

He had worked out with skill and patience the surgical technique of grave throat diseases, but he will be specially remembered in the department of abdominal surgery. He was one of the group of distinguished pioneers of our generation who brought several grave abdominal problem into the range of operative surgery.

He was deeply imbued with the traditions of his great Alma Mater and with its great personalities in medicine and surgery, several of whom had been his teachers.

He was undoubtedly a great clinical teacher—painstaking, patient, sympathetic, with an unfailing memory and practical experience in detail. I had the advantage of much of his genial co-

operation in private cases. He was a true yokefellow, patient beyond measure, resourceful and prompt in emergencies, cheery and inspiring alike to the sick man and to colleagues, to house surgeons, nurses and friends. In his later years, when his work at Guy's was approaching its completion, he attended at stated times during several years at Lambeth Infirmary. I accompanied him on some of these visits. He investigated and demonstrated the obscure cases submitted to him by the enthusiastic and well-informed resident medical officers, and these conferences were amongst the best clinical teaching that I have witnessed anywhere.

Sir Charters Symonds did yeoman service in the Great War as consultant surgeon both at home and abroad. He gained the warm esteem of his professional brethren by his contribution of important papers to the various medical societies.

What about his other activities ? He was always ready to give a helping hand to his poorer brethren. For many years he was treasurer to the Royal Medical Benevolent Fund. He took enormous pains to keep the Society on right lines. Let me mention one incident bearing on this point.

A former business secretary through failing health had become inefficient, and the Society had suffered. On the retirement of this official, Sir Charters volunteered to carry on a considerable part of the work, and attended the office every morning for many weeks for that purpose. In this way he acquired a large knowledge of details, which was very useful in the management of the Fund.

It also came to our knowledge that on many occasions he paid personal visits to impoverished families of deceased doctors in order to help forward equitable claims on the Fund.

Sir Charters Symonds was always keenly interested in children, and his appointment as surgeon to the Evelina Hospital gave him many clinical opportunities of widening his experience in that direction.

For several years he was an active member of the Invalid Children's Aid Association, and I remember well his keen interest in the development of the excellent hospital of that Association which ministered to the special needs of children semi-convalescent from rheumatic fever with early heart complication.

Sir Charters' family life was perfect. When sorrow and anxiety came he faced them with courage and good cheer. After the onset of his long and painful illness, nothing could exceed his patience and constant concern for the well-being of those around him.

He has gone to his rest and—who can doubt ?—to his reward. He was indeed " a good and faithful servant "—a servant of God and of humanity.

His memory will be green and fragrant not only to those of all ranks whom he relieved by his skill and devotion, but to those who knew and loved him as an all-round good man and as a faithful friend.

Correspondence

The Late Sir Charters J. Symonds

To the Editor of the GAZETTE

SIR,—The passing of Sir Charters Symonds will bring wistful regret to many old Guy's men. Of his eminence in surgery others can more adequately speak ; as a student I recall him as the finest of teachers. But it is the man behind it all that we like to dwell upon—his integrity, generosity and humanity.

Perhaps Sir William Osler in medicine corresponds most aptly with Sir Charters Symonds. Their education did not eradicate the humanities. Both possessed the questioning spirit in the good sense, and both were students throughout. Character still counts—and in the complexities of our profession that of Sir Charters leaves for us a light behind, and

" The memory of a man unspoil'd."

He will remain for Guy's the Beloved Surgeon.

Yours, etc.,

RICHARD GILLBARD.

36, Dean Road,
Willesden Green, N.W.

To the Editor of the GAZETTE

SIR,—As one who had the privilege to be Sister of the late Sir Charters Symonds's Women's Ward " Lydia " from 1906 to the date of his retirement as Senior Surgeon, allow me to add tribute to his memory and work for Guy's. His courtesy and consideration towards the nursing staff were unfailing, and his sympathetic personal bearing towards his patients unforgettable. In this connection a special aspect of his teaching which impressed me was the necessity that the patient's point of view was of primary importance. *They* were the sufferers in mind and body, and therefore it was always ethically and medically worth while to spend time and trouble to reach it. The man or woman came before text-books and routine.

May his kindly and humane spirit live for ever more in the life of the Hospital he loved !

Yours, etc.,

F. A. SHELDON.

6, McWhirter House,
St. John's Wood.

To the Editor of the GAZETTE

SIR,—As one of the many old Guy's nurses, I would like to express the heartfelt grief we feel at the loss of Sir Charters Symonds. It was my great privilege to work for him in the Wards, Out-patients and many private cases, and at all times found him most kindly, considerate and courteous. His patients were always comforted by his visits. What he did for people in poor circumstances will never be known. I once asked a crossing sweeper who it was that had removed his leg. He replied, " Mr. Symonds, in Guy's Hospital—a real gentleman I'd trust to take my head off."

Guy's was indeed blessed by such a man.

Yours, etc.,

AN OLD GUY'S NURSE.

To the Editor of the GAZETTE

SIR,—As a Guy's trained nurse, may I be allowed to write a few words of appreciation of the late Sir Charters Symonds?

I did not know him so well at Guy's as later on, when I nursed for him some difficult and trying cases, and then began a deep and true friendship which lasted until he died. I owe much to his friendship and wonderful teaching. His kindly interest, true sympathy and ever-ready help were things to value and remember.

To nurse for him was indeed a pleasure. No detail was ever too small or trivial for him to pass over, and his quick appreciation of any little suggestion, his unfailing tact, courtesy and kindness, called for the highest and best standard of nursing.

I am happy to think it was my privilege to help to nurse him during his last illness.

His example and courage were indeed wonderful, and his memory is a very precious thing to me.

Yours, etc.,

M. ELLIS ROWELL.

Langley House,
46-49, Beaumont Street, W.1.

Guy's Chaplain

To the Editor of the GAZETTE

SIR,—In the Standing Orders for the Chaplain to the Hospital I am instructed to include in my ministrations not only the patients and the nurses, but also the resident domestic staff of the Hospital and the students of the Medical School. In recent years it would seem that a false idea has grown up that the Chaplain was not accessible to, or concerned with, " students," and that his activities in their direction were to be solely identified with the activities of the Christian Union. I should be grateful if through your columns you will allow me to extend a very sincere invitation to anyone to come to my Room (to be found to the left as you enter the Chapel in the front Quadrangle opposite the Counting House) at any time. I should like to be able to be of some service not only to the Christian Union but also to other students who may not be members of this body. I should welcome the opportunity of promoting some form of discussion group to consider matters of religious interest for medical men—such as the apparent conflict between the goodness of an almighty deity and the existence of pain.

And with those who are communicants of the Church of England I should very much value a closer friendship at our Hospital Altar, to our mutual encouragement.

Yours, etc.,

EDWARD ROYLE,
Acting Chaplain.

The Chaplain's Room,
Guy's Hospital, S.E.1.

House Officers and Christmas!

To the Editor of the GAZETTE

SIR,—Is it not time that for House Officers, at any rate, the tyranny of a Christmas at Guy's might be relaxed? Quite apart from having all leisure for three months monopolised by " Nigger " practices or play rehearsals, the unfortunate resident without musical talent often suffers severe psychological trauma, only partly counteracted by early morning C_2H_5OH. Might not the " Niggers " be left to those House Officers and students who volunteer, and preparations for the Residents' Play be accelerated so that this could be held in the first week of January, as, indeed, it used to be until 1914.

Yours, etc.,

J. J. CONYBEARE.

10, Upper Wimpole Street,
W.1.

"Cosmics"

The Opening Address of the Winter Session, 1932-33, by the Rt. Rev. The Lord Bishop of Southwark, on October 5th, 1932

MR. CHAIRMAN and GENTLEMEN,—The art of Headlines, which has not, so far as I know, yet acquired a technical name, is one of the many in which I am not proficient. So when your Dean invited me to address you on this occasion I glibly accepted, being susceptible to flattery, but when he wrote and asked me for a title for my address I shied, and omitted to answer his letter. But with inexorable pertinacity he wrote again, and in desperation I concocted "Cosmics." Why? Before I answer that question I would assure you that the word is correctly spelt, as I gather there have been doubts expressed on the point. My subject has nothing to do with the care of the complexion. But you can substitute "k's" for "c's" if you prefer to be pedantic, or are a simplified-spelling addict. The word, as the more cultivated of this distinguished company may have already guessed, is derived from "cosmos," which means "order" or "system," as contrasted with "chaos," which means, to borrow from Liddell and Scott an apt histrionic paraphrase, "the void and formless infinite." Perhaps when you have heard me to the end you will feel that I ought to have styled my address not "Cosmics," but "Chaotics." Cosmos, then, meaning "order" or "system," was the somewhat question-begging name which the ancients applied to the Universe. Blasé and disgruntled moderns, dizzied and bewildered by the quantum theory and physics which are expanding all around us, not to mention the departure from the gold standard and other symptoms of infinite flux, might hesitate to dub the Universe an ordered system. Still, even they cannot get away from the fact that it is a universe of some sort. So by "cosmics" I mean the science of the Universe, or all things; somewhat in the spirit of the aspirant for Holy Orders who, when asked to rehearse the articles of his belief, said, "I believe in all things, visible and invisible." Now if, as is possible, some of you are jumping to the conclusion that I chose "cosmics" for my title because I wanted to keep myself free to talk about anything and everything or nothing at all, you are mistaken. I chose it because I couldn't think of a better word to describe what I want to commend to your serious consideration.

The amount of knowledge at the disposal of humanity is increasing at so prodigious a pace that everyone who wants to be efficient has to become a specialist of some sort. I used to be told at Oxford that Francis Bacon was the last man who could claim to know all there was to know.

Specialisation is, of course, no new thing. In the ancient universities it was provided for by the old, original faculties, which derived their origin from certain fundamental and enduring needs of human life: that of bodily well-being or health, which is studied by the faculty of medicine; that of social well-being, or justice between individuals, corporations, and states, which is dealt with by the faculty of law; and that of moral and spiritual well-being, which is the concern of the faculty of theology. But each of these faculties built up their specialised studies upon a basis common to them all, styled the Faculty of Arts. Not till you had graduated in this were you competent to proceed in any of the others. And the reason was that your course in Arts equipped you with what the Germans call a "welt-auschanung," a "world-view," which provided the medium in and through which the specialists in the other particular faculties might co-operate intelligibly and intelligently with one another; it provided a working sufficiency of letters, science and philosophy to enable educated people to understand, appreciate and criticise one another's specialised knowledge.

Now it appears to me that this common equipment to take a common interest in all the various departments of knowledge and activity by which human life is sustained and makes progressive contacts with the universe of which it is an element is a most valuable, and indeed essential, provision if civilisation is to continue its development as an ordered whole, and not become simply a chaotic vortex of unrelated and disruptive interests and energies. Yet the increasing specialisation of knowledge has brought it about that in even the ancient universities the courses provided under the ægis of the Faculty of Arts are intensely specialised, while in some of the modern universities you can proceed to a specialised degree without doing any "Arts" at all. This specialisation has been driven back even into the later stages of school life, for it has also affected to a considerable degree the Higher Certificate Examinations. In fact, for practical purposes we may say that what was originally the function and ideal of a Faculty of Arts at a university is now fulfilled by the School Certificate course. Far be it from me to speak slightingly of the School Certificate Examination. Has it not provided

me, through the piles of its papers over which I have scrawled in blue pencil year after year, with the wherewithal for some very pleasant summer holidays? Yet as the greatest common measure of culture for the intelligentsia of an imperial race, it leaves something to be desired. And it is that something which is my chief concern to-day. For it is a very dangerous weakness in out present schemes for educating those who are, by intellectual leadership, to make the world safer for civilisation—or rather to make civilisation safe for the world—that very few, comparatively, of those whom the schemes let loose upon mankind as doctors, scientists, men of business, lawyers, men of letters, journalists, politicians and priests, have had any adequate opportunity of learning to understand one another's interests and points of view. The result is that we are continually confusing issues by futile misunderstandings and egregious misrepresentations. Instead of marking upon those whom it is our responsibility to guide —by reason of our superior educational advantages —a clear, intelligible impact, to which they can confidently respond, we give the impression of being continually at cross-purposes, and uttering contradictory cries.

I am not going to propose as a remedy for this that all the specialised arts and sciences of the modern world should meekly bow their heads and submit once again to the dogmatic rule of Theology, that star-crowned Queen of all Learning, from whose sway they revolted at the Renaissance to vindicate for themselves autonomics which have certainly not proved fruitless. But I am going to suggest that it is a really vital concern for the welfare of the community that those who lead its thinking and, in the long run, mould public opinion should have as the background of their thought a working knowledge of the outstanding problems, and the outstanding solutions suggested for those problems, which have been the concern of the great minds of mankind throughout the history of human civilisation. Ought not everyone, whatever his profession or the university or college course by which he has qualified for it, to know something reliable and significant about the great creative figures of human thought and discovery in the fields of science, law, art, religion? Whatever you may yourself think about Buddhism, for instance, you ought to know who Buddha was, and understand something of what Buddhism is, and why it still counts for so much in the lives of so many hundreds of millions of people. If you do, you will find that there are a good number of unconscious Buddhists in Europe, and that may give a clue to some psychoses, which otherwise you might miss. We are continually learning more and more how impossible it is to draw a hard and fast boundary between the material and the spiritual body and mind. How vastly important, then, that we should all of us understand better than most of us do the great traditions and forces which are operative in the human mind as a result of great philosophies, religions, and juristic and social systems. On the other hand, how handicapped are theologians, clergymen, philosophers, lawyers, social workers and legislators by ignorance of the scientific outlook and how it has come to be what it is.

I hope I have said enough to show why I should take a course of public lectures for students of all faculties on what, for want of a better name, I would call "Cosmics," to form a necessary part of every university or college course leading to any sort of degree. About thirty lectures, given in the second year, might suffice, given by professors and lecturers who are at once both experts in their subjects and capable of reliable popularising. The course would deal with the various phases of the age-long effort of the human mind to understand and live in harmony with the universe of which it is a part; it would aim at giving those who attended a working knowledge of the great systems of ethics, metaphysics, politics, religion, art and science which have made their mark on civilisation and are at work within it now. I believe it could be done, and I believe the doing of it would prove beneficial not only to the hearers but to the givers of the lectures.

But, of course, I am not suggesting that you, who have already passed from your university to your Medical School, should be subjected to such a course. Like me, you will have to do without its benefits. But, if I have at all succeeded in making plain what I am driving at, I hope I have persuaded you of the vast importance of understanding not your own craft only, as a specialist can and must, but understanding the concerns and the outlook of those who, as fellow-workers with you, are occupied with the welfare of humanity. Everywhere men need bodily health, social justice and spiritual peace. The adequate provision of that need requires specialists, but it also requires that the specialists should understand each other and co-operate, for they are all of them dealing with the same material—human personality and the world we live in. I would urge on you the importance of making friends now with those of other faculties and interests than your own, and when you get to work in the world, of making a point of keeping in friendly touch and more than merely casual co-operation with the social workers and others who are seeking

justice and right, and with the clergy and ministers, who are seeking the moral and spiritual welfare of the people. We are all engaged on one great task, the service of humanity; we do not all look at it from the same angle and pursue it by the same methods. But for all of us the same great issues of truth and error, right and wrong, health and disease, life and death, time and eternity, are the warp and woof on the loom at which we work. Whatever his profession, vocation, craft may be, he can do the best work who "sees life steadily and sees it whole."

Bright Intervals—IV

THE Sister glides with noiseless tread
Around the ward from bed to bed,
To see that every victim's right
And settled snugly for the night.
If nice and early on her round
She chats awhile in each compound,
Inquiring with her special charm
The health of body, leg or arm;
While brushing off with fingers deft
The particles that supper left.
But when she doesn't come for hours
To say, "Hullo!" and smell your flowers,
You miss her visit, and, instead,
Adjust the 'phones around your head,
And try to drive the blues away
With some uncertain broadcast play.
When morning comes she's on the spot
To see the victims' bacon's hot,
That tea and coffee's nicely made,
And p'raps she'll spread your marmalade.
So many pages could I write
About the Sister (very) Bright,
But since she's put my arm in balk
I have to do my stuff in talk.

By "Sinister"

British Medical Association

Prizes for Short Clinical Papers, 1933

DEAR SIR,—I have pleasure in saying that the Council of this Association proposes to award, in June, 1933, prizes of £10 each for short Clinical Papers, under the heading:—

"Describe 3 Cases of Medical Interest which have been under your Care and, for each Case, discuss Differential Diagnosis, Ætiology, Methods of Prevention (where available), Treatment, and Prognosis,"

by fourth and subsequent year Medical Students or by Registered Medical Practitioners of not more than one year's standing (*i.e.*, from date of passing of qualifying examination), studying, or who have studied, at one of the Medical Schools in the undermentioned Groups.

2. A Prize of £10 will be open for award in each of the following 14 Groups of Schools:—

Group 1.—University of Aberdeen; University of St. Andrew's.

Group 2.—Queen's University of Belfast; University of Dublin (Trinity College); National University of Ireland (University College, Cork; University College, Dublin; University College, Galway); Royal College of Surgeons in Ireland (Schools of Surgery).

Group 3.—University of Birmingham; University of Bristol; University of Wales.

Group 4.—University of Durham; University of Leeds; University of Sheffield.

Group 5.—University of Edinburgh; School of Medicine of the Royal Colleges, Edinburgh.

Group 6.—University of Glasgow; Anderson College of Medicine; Queen Margaret College (School of Medicine for Women); St. Mungo's College.

Group 7.—University of Liverpool; Victoria University of Manchester.

Group 8.—London: Charing Cross Hospital Medical School; King's College Hospital Medical School.

Group 9.—London: Guy's Hospital Medical School; London Hospital Medical College.

Group 10.—London: London (Royal Free Hospital) School of Medicine for Women; University College Hospital Medical School.

Group 11.—London: Middlesex Hospital Medical School; St. Mary's Hospital Medical School.

Group 12.—London: St. Bartholomew's Hospital Medical College; St. George's Hospital Medical School.

Group 13.—London: St. Thomas's Hospital Medical School; Westminster Hospital Medical School.

Group 14.—The Medical Schools of the Empire other than those of the British Isles.

3. The paper should not exceed 3,500 words (equivalent to about 2½ pages of the *British Medical Journal*).

4. The papers will be judged by examiners appointed by the B.M.A. Council, and the decision of the Council will be final. The prizes will be awarded to the authors of the papers deemed by the examiners to be the best sent in. If, however, no paper received from a Group is considered by the examiners to be deserving of a prize, no prize will be awarded in that Group.

5. The paper should be plainly written or typed on foolscap (one side only), and must reach the Medical Secretary, B.M.A. House, 19, Tavistock Square, London, W.C.1, by April 18th, 1933. Each paper must be signed by a pseudonym only, and be accompanied by a signed and dated statement that it has been the *bona fide* work of the competitor, and that he or she comes within the definition (as above) of those eligible to compete; together with his or her full name, pseudonym, address, Medical School, and (if on Medical Register) month and year in which final examination qualifying for registration was passed.

6. Notice as above appeared also in the *B.M.J. Supplement* of August 13th, 1932 (page 133).

Yours faithfully,

ALFRED COX,
Medical Secretary.

British Medical Association House,
Tavistock Square,
London, W.C.1.

Sport

Rugby

Guy's v. Catford Bridge

ON Saturday, September 17th, Guy's opened their season with a home fixture against their old neighbours Catford Bridge, and were successful by 1 placed goal and 4 tries (17 points) to a placed goal and a try (8 points).

The ground was in perfect condition, but the heat was very trying for the players, who must have been relieved when the whistle went for no-side.

Guy's fielded an experimental side, but the team gave a surprisingly good display, and the forwards in particular did very well.

The visitors were set to face the sun, and in the first few minutes Giesen cut through and sent Burrows in for an unconverted try. Stung by this reverse, Catford attacked, and Guy's were penalised for offside. Ashdown created an awkward situation when he cross-kicked in his own 25, and Guy's were lucky to touch down.

A snappy round of passing between Howell, Clarke and Drummond resulted in the latter scoring near the posts, but O'Shea failed to convert.

After Hutchinson had tried to land a goal for Catford, Thomas and Clegg participated in a clever round of passing, and Clegg scored a try behind the posts for O'Shea to convert. The Hospital nearly repeated the effort a minute or two later, but they were over-anxious and were penalised for off-side.

After the interval, Catford improved and, following two or three attacks, they were rewarded with an easy try. Meikle was allowed to pick up after being collared, and, showing a clean pair of heels, he raced in behind the posts for Hutchinson to add the goal points. Catford nearly scored again when their forwards followed up a long punt, but Howell saved the situation by touching down near the posts.

The Hospital three's were now seeing more of the ball, and some good passing movements took place, but Catford tackled so well that the attacks were never allowed to become dangerous.

T. Morgan, who had been very prominent throughout, caught the visitors' full-back napping when the latter fumbled a high kick, but Catford cleared. Soon afterwards, C. S. Darke came within an ace of scoring, and Guy's missed an easy penalty goal awarded to them in front of the posts.

Darke and Clarke were again prominent, and from a scrum on the visitors' goal-line Burrows missed an opportunity to score. Giesen made a great run to the visitors' 25, but just when he appeared certain to score he slipped. However, Thomas was at hand, and he passed out to Burrows, who was thrown into touch near the corner flag.

From the throw-in the forwards made a fine dash for the line, and O'Shea touched down for another try. Guy's continued to have the best of matters, but only after a hard fight, and Giesen again found a hole in their defence and made a brilliant run before sending in Howell for another unconverted try.

Near the end Catford reduced the deficit, when, following a fine run by Cabiera, who was thrown into touch near the corner flag, the forwards carried the ball over the line and registered a try, which was not converted.

Team.—W. J. R. C. Morgan; D. E. Ashdown, I. K. Thomas, W. R. Clegg, G. A. Burrows; J. E. Giesen, J. Howell; M. R. Kark, J. P. O'Shea, A. G. Heberlein, R. J. Drummond, D. M. Leeming, T. Morgan (Capt.), A. R. Clarke, C. S. Darke.

Guy's v. Plymouth Albion

VISITING Plymouth on Saturday, September 24th, the Hospital were strengthened by the return of P. C. Alexander, but they had to admit defeat after a terrific struggle by 3 placed goals and 3 tries (24 points) to 2 placed goals and a dropped goal (14 points).

Taking everything into account Guy's have every reason to be satisfied with the result—it was most unfortunate that they lost the services of their full-back, W. B Clegg, who fractured a finger just before the interval. At the time, Guy's were on top, and would have made a much closer fight of it had they been at full strength. Then, again, Morgan came into the wars and had two or three teeth knocked out during the second half.

The Hospital forwards again played a great game and were masters of the situation in the set scrums, but failed in the line-out against their taller opponents. Both teams played fast and clever football. The Albion nearly scored in the first few minutes when Parker hit the post when attempting a drop at goal, and Stanbury just missed with a penalty.

After 15 minutes, Plymouth took the lead through Richards, who stole away from the scrum and scored near the posts for Stanbury to convert.

Ten minutes later, Guy's drew level, when the forwards made a great raid into the Albion's 25. Thomas picked up in the loose and passed to Alexander, who cleverly eluded the opposition and scored a fine try, which he converted. Within a minute the home side had regained the lead again through Richards, who picked up in the loose about 30 yards from the goal posts, and just as he reached the line passed to Gormley, who crossed for Stanbury to convert.

For the last few minutes of the first half Guy's attacked continuously, but Plymouth defended desperately. On one occasion Brigstocke fought his way out almost single-handed from under the goal posts, just when Guy's were within an ace of scoring. After Giesen had tried a drop at goal and Zorab had made a good run, the Albion sprung a surprise when the forwards carried out a sharp raid, and Stanbury crossed for an unconverted try.

Following the interval, the exchanges were fairly even, although it was obvious that Guy's missed the services of their full-back. Eventually Guy's reduced their deficit as the result of a clever try by Giesen. The Plymouth three's were carrying out a passing movement when the ball was knocked out of Gormley's hands. Giesen punted the ball forward and secured the touchdown for a try, which Alexander converted.

From this point the home side rallied, but the Guy's defence held out brilliantly until a quarter of an hour from the end, when Davies broke away and, selling a perfect dummy, sent out to Parker, who scored an unconverted try.

Near the end, Sparks and Parker scored further tries for Plymouth, the former being converted, and just before the whistle went Giesen dropped a splendid goal for Guy's from 40 yards' range.

Team.—W. B. Clegg; W. G. Zorab, P. C. Alexander, I. K. Thomas, W. J. R. C. Morgan; J. E. Giesen, J. Howell; M. R. Kark, J. P. O'Shea, A. G. Heberlein, R. J. Drummond, D. M. Leeming, T. Morgan (Capt.), C. S. Darke, A. R. Clarke.

Guy's v. Camborne

AFTER their fixture with Plymouth, the Hospital travelled on to St. Ives, where they spent the week-end prior to meeting Camborne on Monday, September 26th. The visit of Guy's proved a great attraction, and there was a large attendance to see the home side successful by a placed goal, a penalty goal and a try (11 points) to a penalty and a try (6 points). Owing to injuries, T. Morgan and W. B. Clegg were unable to turn out for Guy's.

Camborne had the wind against them, and Guy's opened with early pressure, but the home forwards retaliated with a fine forward rush to the Hospital line. Burrows got away on the wing and kicked ahead, but Bennetts marked. A minute later Darke dribbled cleverly to Camborne's 25, but knocked on with only the full-back to beat. After this Camborne attacked vigorously, and eventually Rockett crossed for an unconverted try. Alexander gained a lot of ground with a

raking kick to touch, but Guy's were penalised and sent back. Burrows intercepted a passing movement and set off for the line, but was overtaken and thrown into touch when a score appeared certain.

The exchanges were now fairly even, and both sides took up the attack in turn, but the defences prevailed. The tackling was very keen, and player after player was grassed immediately he received the ball.

Clever passing between Collins and House enabled Rockett to score his second try, which Collins converted. A minute later Alexander opened the scoring for Guy's by landing a penalty from 40 yards range. Five minutes before the interval the Camborne forwards pressed hard, but Guy's held out.

On the resumption, the home side set a hot pace until one of their players was taken from the field with a broken collar-bone, and Rockett was taken out of the scrum to fill his place.

After this the Guy's pack held the advantage and secured the ball fairly regularly from the scrums. However, the Hospital were unable to score, and Collins made a burst to Guy's 25, where a penalty was granted and the same player landed a goal.

Clever play by Giesen and Alexander put Guy's on the offensive again, and Howell was nearly over. Another three-quarter movement followed and Alexander kicked over the line and touched down for a try, which he was unable to convert.

Just before the end Giesen strained the muscles of his leg, but no further scoring took place.

Team.—W. J. R. C. Morgan; W. G. Zorab, P. C. Alexander, I. K. Thomas, G. A. Burrows; J. E. Giesen, J. Howell; M. R. Kark, J. P. O'Shea, A. G. Heberlein, R. J. Drummond, D. M. Leeming, A. R. Clarke, C. S. Darke, T. A. Hale-Monro.

Guy's v. United Services (Portsmouth)

FOLLOWING their tour in the West, Guy's were compelled, owing to injuries, to make several changes in the side when the Services visited Honor Oak Park on Saturday, October 1st. On the other hand, the visitors fielded a powerful side, which included several Internationals and "Trial Caps." It was most unfortunate that the weather changed just before the match commenced, as the rain made the ball very slippery and difficult to handle, and spoilt what would have been a fast and open match.

The Hospital forwards again played a remarkably fine game and, in spite of the fact that they were up against a much heavier pack, they not only held their own in the scrums, but were seen to advantage in the line-out and were continually spoiling in the loose.

Eustace was back again at the base of the scrum and played brilliantly until he was injured. Guy's undoubtedly missed the services of Giesen and Windsor Lewis, but Morgan at full-back gave a very promising display. So successfully did the Hospital defend that at the interval the Services only led by a placed goal. A long pass out by Cheyne enabled R. S. Casement to cross for a try behind the posts, which Forrest converted.

In the second half the Services carried out several promising movements, but the Hospital, by hard tackling and clever kicking, in which Thomas and W. J. R. C. Morgan were particularly prominent, kept the visitors at bay.

It was not until five minutes from the end that the Services scored again, and then they registered two tries in quick succession. A fine run by Elliot paved the way for the first try, which Forrest obtained and converted. With a minute to go, Hodder got away on the right and scored in the corner.

Guy's had bad luck in not scoring after the interval, when Alexander slipped through the defence and, in trying to give the full-back the dummy—which he did successfully—the ball slipped from his hands just as he was about to go between the posts.

Team.—W. J. R. C. Morgan; D. E. Ashdown, P. C. Alexander, I. K. Thomas, W. G. Zorab; C. G. Wright, R. J. Eustace; M. R. Kark, J. P. O'Shea, A. G. Heberlein, T. A. Hale-Monro, D. M. Leeming, T. Morgan (Capt.), C. S. Darke, A. R. Clarke.

The Pavy Gymnasium

THE Annual General Meeting of the Pavy Gymnasium was held on Thursday, September 15th. The President was in the chair. The Minutes of the last meeting were read and confirmed, and the secretaries of the various clubs then gave their reports. J. R. Forbes reported a very successful season for the Fencing Club, which included the regaining of the Inter-Hospitals Cup. The gymnastics secretary, L. J. Bailey, regretted that there had been a falling-off in membership, but confidently expected that this would be remedied shortly. There was no boxing report.

D. H. Irish then spoke on financial matters. He explained that the gymnasium funds, hitherto sufficient to meet expenses, were not now adequate, and proposed that application be made to the Clubs' Union for a grant. This was carried unanimously.

The meeting then proceeded to the election of officers. Mr. Mollison was re-elected President and Sir Francis Shipway treasurer. The vice-presidents were all re-elected.

D. H. Irish was unanimously re-elected Captain of the gymnasium. Other elections were as follows :—Hon. Secretary of Fencing, J. R. Forbes; Committee member, S. W. Wright. Hon. Secretary of Boxing, R. A. Johnson; Committee member, A. State. Hon. Secretary of Gymnastics, L. J. Bailey; Committee member, J. W. Doupe.

The meeting then closed with a vote of thanks to the Chairman.

Hockey

1st XI v. R.A.S.C., Feltham

ON Wednesday, September 28th, the hockey team began the season well by defeating the R.A.S.C. by 5 goals to 3 on the latter's ground.

The play was, for the most part, even, and the game was fast throughout, though noteworthy more for the spirit of give and take than for clever combination and stick-work.

The half-backs and backs played well, especially on the right, while Brown, in goal, made several good saves. The forwards tended to be too individual, and too much short passing was indulged in in the centre, until towards the end of the game, when the discovery of a weakness in our opponents' left back division gave opportunity for Clarke, on the right wing, to send in several good centres.

At half-time, the Hospital led by two goals to one, and, shortly afterwards, a lapse on the part of our opponents' goal-keeper enabled Rowe to put us further ahead, and this lead was maintained.

It is essential for our forwards to combine more efficiently if we are to prosper this season.

Goals were scored by Trethowan (2), Rose (2) and Clarke.

1st v. R.N. and R.M., Chatham

ON October 1st, the team visited Chatham and were defeated by 3 goals to none. The game, played upon an excellent surface, was very fast and the play even. Owing to our goalkeeper going astray, we were obliged to play with a "borrowed" substitute, who, however, did excellent service on our behalf.

Again our defence proved very sound, Hayward, at right back, excelling, while Turner also played very well. Our forward line was weak and lacked finish, though three shots hit the post. The wings played better than in the last match, but too many centres, especially from the right, were allowed to pass untouched across the field. There was much room for improvement, too, in the receiving of corners, but it is early in the season to be too critical, especially as the team is not yet settled.

Trethowan had bad luck with several shots and fully deserved to score, and Clarke was equally unfortunate with two shots from difficult angles.

Our opponents played very sound hockey, their centre-half and centre-forward being particularly dangerous, but on the run of the play we should, at any rate, have been able to draw with them.

Entry of Students, October, 1932

Medical

Name	*Year*	*School or College*
Audy, J. R.	2nd Year	Alleyn's School.
Barbour, G. B.	4th Year	Mill Hill School and St. John's College, Cambridge.
Bridger, W. E. W.	1st M.B.	Alleyn's School.
Burnand, N. J.	2nd Year	Croydon High School.
Bowes, E. R.	2nd Year	Blundell's School, Tiverton.
Buckler, F. R.	1st M.B.	Dover College.
Buckmaster, J. F.	1st M. B.	The Friends' School, Saffron Walden.
Clarkson, P. W.	4th Year	Christ's College, New Zealand, and University of Edinburgh.
Coxon, R. V.	1st M.B.	St. Dunstan's College, Catford.
Craft, A. W. J.	2nd Year	King's College.
Crook, A.	1st M.B.	Mill Hill School.
Darlow, A. R.	2nd Year	Humberstone Foundation School, Lee.
Davis, J. J.	1st M.B.	Reading School.
Denton, P. H.	2nd Year	Enfield Grammar School.
Djanogly, B.	1st M.B.	King's College.
Dabbs, A. G.	1st M.B.	Bablake School, Coventry.
Daly, B. G.	Pre-medical	University of Witwatersrand.
Drybrough-Smith, I.	1st M.B.	Epsom College.
Edwards, A. M.	1st M.B.	Wallasey Grammar School.

Name	*Year*	*School or College*
Edwards, C. H.	2nd Year	Blundell's School, Tiverton, and University College, Swansea.
Epps, P. G.	1st M.B.	Canford School.
Foote, E. S.	1st M.B.	Epsom College.
Foster, D. S.	1st M.B.	King's School, Canterbury.
Foster, H.	1st M.B.	Colchester Royal Grammar School.
Gardiner, P. A.	1st M.B.	Westminster School.
Gilbert-Harris, R.	1st M.B.	Lancing College.
Godber, G. N. L.	1st M.B.	Westminster School.
Gordon, J.	1st M.B.	University of the Cape of Good Hope.
Gray, P. H. K.	2nd Year	Bradfield College.
Green, S.	1st M.B.	Christ's College, Finchley.
Harmer, J. D.	1st M.B.	Merchant Taylors' School.
Jackson, R. C.	2nd Year	Oakmount School, Westmoreland.
James, G.	1st M.B.	Archbishop Tenison's School, Kennington.
Knight, H. M. R.	2nd Year	Epsom College.
Lee, A. S.	1st M.B	Arnold School, Blackpool.
Leedham T. S.	Pre-medical	Durban High School.
Lennie, A. B.	1st M.B.	Berkhamsted School.
Levy, M.	2nd Year	Dulwich College.
Lilwall, B. G. A.	2nd Year	Mill Hill School.
Lange, M. J.	4th Year	University of Cape Town.
Loden, A. E.	2nd Year	Royal Masonic School, Bushey.
Maddison, B.	2nd Year	Bemrose School, Derby.
Mathias, I. J.	1st M.B.	County School, Llandyssul.
Mills, C. C.	2nd Year	Taunton School.
Mills, C. N.	Pre-medical	Worksop College.
Milton, L. E.	Pre-medical	Epsom College.
Moir, D. F. G.	4th Year	St. Paul's School and Magdalen College, Oxford.
Nash, A. B.	1st M.B.	Abit Gymnasium, Hanover.
Norrish, F. B.	3rd Year	Bromsgrove School, Worcestershire, and Queen's College, Cambridge.
Ponder, A.	4th Year	Perse School and Christ's College, Cambridge.
Porteous, G. H.	3rd Year	King's College School and St. John's College, Cambridge.
Partridge, M. A.	4th Year	Shrewsbury School and Balliol College, Oxford.
Rake, J. H.	Pre-medical	Monkton Combe School, Bath.
Rees, H.	1st M.B.	Swansea Grammar School.
Richardson, J. R. E.	1st M.B.	Dulwich College.
Rilstone, F. W. B.	1st M.B.	Dulwich College.
Russell, W. R.	Pre-medical	St. Paul's School.
Ryle, J.	1st M.B.	Sherborne School.
Seymour-Price, D. B.	Pre-medical	Aldenham School.
Shearman, W. A. de C.	1st M.B.	St. Paul's School.
Shire, T. H.	2nd M.B.	St. Paul's School and Hertford College, Oxford.
Smart, J. H.	1st M.B.	Forest School, Snaresbrook.
Smith, F. M.	Pre-medical	Perse School, Cambridge.
Smith, H. D.	1st M.B.	Christ's Hospital.
Stewart, C. J.	1st M.B.	Isleworth County School.
Stoll, H.	2nd Year	Raine's Foundation School.
Talfourd-Jones, P.	1st M.B.	Westminster School.
Thomas, I. E. J.	1st M.B.	Colfe's Grammar School.
Tilly, C. R.	2nd Year	Clifton College and Emmanuel College, Cambridge.
Topping, R. A. R.	1st M.B.	Lancaster Royal Grammar School.
Van der Merwe, G. J.	4th Year	University of Cape Town.
Voss, H. J.	Pre-medical	Merchant Taylors' School.
Wells, J. M. W.	1st M.B.	Haberdashers' Aske's Hatcham School.
Weston, W. F. J.	1st M.B.	Christ's Hospital.
Wiggins, W. R. D.	1st M.B	Bradfield College.
Wigley, G. S.	1st M.B.	St. Paul's School.
Wright, C. F.	2nd Year	St Dunstan's College, Catford.
Yerbury, R. O.	2nd Year	Epsom College.

Dental

Name	*Year*	*School or College*
Archibald, H. M. D.	1st Year	Reading School.
Baskin, W. B. J.	Pre-medical	Gravesend County School.
Belcher, R. J.	1st Year	Rydal School, Colwyn Bay.
Bennett, S. B.	Pre-medical	Cheltenham College.
Blake, G. C.	Pre-medical	St. Marylebone Grammar School.
Brooking, J. F.	1st Year	Tonbridge School.

Name	Year	School or College
*Borghys, P.	Pre-medical	Highgate School.
Buckland, H. N.	Pre-medical	Merchant Taylors' School.
Bulow, C. F. H.	Pre-medical	Epsom College.
Burt, S. E.	Pre-medical	Felsted School.
Calder, P. M.	1st Year	Brentwood School.
Clegg, A. J.	Pre-medical	Chatham House School, Ramsgate.
Cripps, N. M.	Pre-medical	Emanuel School, Wandsworth.
Edgell, F. J.	Pre-medical	Thetford Grammar School, Norfolk.
Ellman-Brown, A.	Pre-medical	Plumptree School, Rhodesia.
Farr, M.	Pre-medical	Repton School.
Flitcroft, J. H.	Pre-medical	Swansea Grammar School.
French, J. H.	Pre-medical	Taunton's School, Southampton.
Frost, M.	Pre-medical	Colchester Royal Grammar School.
Green, P. R.	Pre-medical	Tonbridge School.
Guilding, S. W.	1st Year	Manor House School, Clapham.
Hardie, J. B.	Pre-medical	Stationers' Company School.
Harrington, J. L.	1st Year	St. Lawrence College, Ramsgate.
*Harvey, J. W. S.	Pre-medical	Shrewsbury School.
Hopkins, P. K.	Pre-medical	Whitgift Grammar School.
Howe, D. C.	1st Year	Brighton Technical College.
Howe, R.	1st B.D.S.	Borough Polytechnic.
*Hutton, A. M.	Pre-medical	St. Paul's School.
Jenkins, P. S. P.	1st Year	University College of Wales, Aberystwyth.
*Johnson, F. K.	1st Year	Owen's School.
Limpenny, F. T. J.	Pre-medical	Nottingham High School.
McCombie, F.	1st B.D.S.	Rutlish School.
Miron, S. G.	Pre-medical	Cheltenham College and Swansea Grammar School.
Neter, R. A.	1st B.D.S.	Highgate School.
Ogston, R. D.	Pre-medical	Tollington School, Muswell Hill.
Parrott, A. E.	Pre-medical	Berkhamsted School.
Parsons, W. A. T.	Pre-medical	Llandovery College.
Prosser-French, J. C.	1st Year.	Tonbridge School and East London College.
Rand, A.	Pre-medical	Eastbourne College.
Richards, H.	1st Year	University College, Swansea.
*Roberts, B. W. P.	1st Year	Lancing College.
Rowe, N. L.	1st Year	Malvern School.
Sharp, D. G.	1st B.D.S.	Christ's College, Finchley.
Sharp, E. C.	1st Year	St. Alban's School.
Shay, H. B.	Pre-medical	Lindisfarne College, Westcliff.
Sprigings, G. C.	Pre-medical	St. Helen's College, Southsea.
Stanyon, K. A.	Pre-medical	Wyggeston School, Leicester.
Stiven, D. F.	Pre-medical	Haileybury College.
Symmons, J.	Pre-medical	St. Dunstan's College, Catford.
Thomas, J. R. P.	1st Year	Wellington School, Somerset.
*Trevanion, A. H. G.	Pre-medical	County High School, Ilford.
Tudor, J. E.	1st Year	Worksop College.
Turner, C. W.	Pre-medical	Badingham College.
Vosper, J. E. R.	Pre-medical	Plymouth and Mannamead College.
Walker-Smith, H. W.	Pre-medical	Highgate School—
Wallace, L. J.	1st B.D.S.	Oundle School.
Walters, D. L. L.	Pre-medical	Queen Elizabeth Grammar School, Carmarthen.
*Walton, A.	2nd Year	Epsom College.
Weighell, W. K.	1st Year	Clifton College.
*Wilson, P.	Pre-medical	Colchester Royal Grammar School.

* Also Medical.

Hospital Information, etc.

Change of Address

Surg.-Commander N. A. H. Barlow, H.M.S. *Cairo*, c/o G.P.O., London.

G. M. Housden, M.B., B.S., M.R.C.S., L.R.C.P., Chilworth, High Wycombe, Bucks. *High Wycombe* 267.

Appointment

Surg.-Commander H. L. Peregrine, M.B., B.S., L.R.C.P., M.R.C.S., Ophthalmic Specialist, R.N. Barracks, Portsmouth.

Marriage

BARLOW—ASHCROFT.—On 10th August, 1932, at Holy Trinity Church, Brompton, Surgeon-Commander N. A. H. Barlow to Phyllis Ashcroft.

Death

PALMER.—On September 15th, 1932, at Worthing, Clara Jane, widow of F. J. Morton Palmer, M.B. Aged 81.

EDS. { E. S. / M. McA.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

"ONE man's meat is another man's poison" —a saying as true now as when it was first made. Its application here is a protest against those who complain that this paper contains far too much that is professional and what may be described as "shop," and which, according to our critics, can be found in any text-book, and far too little of the doings of our readers and other lighter matter.

Although we do not deny that there may be ground for complaint and some, though we trust not all, numbers may be accused of this dullness, yet in our own defence we would like to point out that this paper is by definition a journal of medical, dental and hospital news, and does not cater for the more lurid tastes; and surely the remedy lies to some extent with our critics—if they would allow their criticisms to be constructive rather than destructive and write suitable articles we should be only too pleased to give them immediate consideration.

However, the provocative letter published in our last number regarding the "Niggers" and Christmas has produced a veritable storm of protest, and has stirred some of our less timid readers to voice their disapproval or their approbation in no uncertain manner.

Taking a broadminded view of the matter, there is much to be said on behalf of the "Niggers" and very little to be said against them. The fact that they are an old tradition is not necessarily in favour of their remaining; a tradition must have a sure foundation if it is to withstand the onslaughts of iconoclastic critics, but surely such is the case with the "Niggers." At their inception, presumably the idea was to make Christmas Day a jollier occasion for the patients, and, although some say that the only people who now enjoy the "Niggers" are the performers themselves, yet even were such a baseless criticism in any way true they can hardly be said to do any harm. Again, it is probably not an exaggeration to say that the greater part of the amusement which the "Niggers" provide is due to the fact that they are the Residents, and therefore well known to their own audience. If, as our correspondent suggests, it were made a voluntary scheme and others were invited to participate, this great attraction would be lost, even if it were practicable, which we very much doubt. However, the letters which we publish this week will be a sufficient answer to those who would modify or abolish this ancient troupe.

WITH the advent of the wet weather the common cold has again returned in full force and with increased strength. In the College, where it may be said to be practically endemic throughout the year, it seems to be of unusual virulence, and we cannot help wondering whether the introduction of gas fires does not favour its presence. Gas fires notoriously produce a dry atmosphere, and it does not seem impossible that, with such a well prepared soil, the chances of infection are materially increased.

Whether they are unhealthy or not is a debatable point, but certainly they are a poor substitute for coal fires from almost every other point of view. To those of us who are unfortunate enough to be the possessors of a bed-sitting room a gas fire is some consolation in that dressing in the morning can be made a less chilly and depressing business, but to those of us who proudly boast two rooms such an advantage is denied. Would it not be possible for those who wish to do so to remove the offending article instead of allowing one's predecessor's taste to be the

criterion by which all subsequent occupants of the room are judged?

THE Debating Society, which held its opening meeting recently after a lapse of some considerable time, was indeed a great success, both from the point of view of the subject chosen and the speakers, who attracted a large gathering. The hidden talent which it brought to light augurs well for the future, and it promises to become once more a flourishing concern.

We have been asked to draw the attention of our readers to the next meeting, which will be held in conjunction with the Nurses' Debating Society in the Nurses' Home on November 17th, at 8.30 p.m., when the subject for discussion will be "Co-education."

Obituaries

HORACE ALFRED HUNT

PRESENT and past members of the Staff and many old Guy's men will regret to hear of the death of Horace Alfred Hunt, late Museum Assistant. He died on August 8th, æt. 69. On his retirement nine years ago, he lived for a time at Addiscombe, after which he moved to Westcliff-on-Sea, where he stayed for five years, when apparently his health began to fail and he wished to return to London. He then lived at Lee for a year or two, and eventually came back to East Dulwich, where he died. His pipe cheered him till the end, and his wife nursed him devotedly.

He was somewhat the silent man, but always of the most kindly and courteous manner. Of his work at Guy's there are others who are better able to speak than I, but I know he was an efficient and conscientious worker. At private post-mortems he was invaluable; he did mine for many years, and on such occasions the day's work finished, he would accompany me, often at a late hour, to help with what is always a difficult undertaking in a private house. However, no trace of a post-mortem could ever be detected when Hunt had the management of it.

Unlike his predecessor, Betts (with whom I also kept in touch after his retirement and attended when he died), Hunt was not reminiscent, and seldom spoke of his memories of the past. Betts used to tell me about the students days of Sir Frederick Taylor and Dr. Pye Smith and the transgressions of many generations of young men whom he thought it his duty to guide in the way they should go. Few of us will ever forget Betts looking over the top of his spectacles and delivering the severe dressing-down he considered necessary upon the return of an overdue sphenoid.

Hunt will have the kindly remembrances of all, and his widow their sympathy. R.T.

DR. JOHN MILLS THORNE, M.R.C.S., L.R.C.P.

ON October 3rd, 1932, the parish of Betchworth and the neighbourhood suffered the loss of one of its best known and best loved parishioners by the death of Dr. John Mills Thorne, M.R.C.S., L.R.C.P., of Brockham Green, at the age of 70

Dr. Thorne was the fourth son of Mr. John Mills Thorne, of Burntwood Lodge, Wandsworth Common, S.W. He was educated at Westminster School, and in the autumn of 1883 entered as a student at Guy's Hospital, for which he formed an affection that was lifelong. Subsequently he held an appointment at the Royal Hospital for Women and Children, and after some years in practice at Retford, Notts., and for a short time at Farncombe, he settled at Brockham Green in 1904, in partnership with Dr. C. F. Wakefield, who had been a fellow student at Guy's Hospital. Here he endeared himself to his patients of all classes, and to numerous friends, by the faithful carrying out of every duty of his profession, and still more by his wide sympathy for those in any kind of trouble. While at Retford he married Lillie, eldest daughter of the Rev. Watkin Homfray, Rector of West Retford. She died in January, 1926, after 33 years of most happy wedded life. At Brockham, Dr. Thorne was Honorary Medical Officer of the Brockham Children's Home, in which he took the keenest interest, and he was a much respected member of the Surrey Benevolent Medical Society. During the 28 years of his residence in the village, there were very few societies and associations that did not include Dr. Thorne's name on the list of vice-presidents and committees, and he took an active interest in them all. His death will be an irreparable loss to his many friends, to whom we offer our deepest sympathy.

Specimen 1864 in the Gordon Museum, Guy's Hospital—Cooper v. Wakley, 1828

A Paper read before the Pupils' Physical Society at the Opening Meeting on Thursday, October 6th, 1932 by Herbert L. Eason, Esq., C.B., M.S.

GENTLEMEN,—There stands before you on the table an insignificant urinary calculus, concerning which there is the following laconic description in the catalogue of the Gordon Museum :—

" 1864.—*Uric Acid Calculus.*

" A small uric acid calculus weighing 120 grains and presenting a laminated structure and an irregular dark brown surface.

" Stephen P., æt. circ. 50, was admitted under Mr. Bransby Cooper in 1828 with symptoms of stone in the bladder, for the relief of which lithotomy was performed. The patient died thirty-two hours after the operation. *See* Insp., Vol. 5, p. 152."

This little stone was, however, the cause of one of the most famous libel actions in the history of English medicine, the case of Cooper *v.* Wakley, heard in the Court of King's Bench on Friday, December 12th, and Saturday, December 13th, 1828, before Lord Tenterden and a special jury. A full report of the case appears in the *Morning Chronicle* of December 13th and 15th, 1828, copies of which are before you.

In the report of the case in the *Morning Chronicle* it was stated that : " This was an action brought by the plaintiff, Mr. Cooper, nephew of Sir Astley Cooper, and surgeon to Guy's Hospital, to recover damages against the defendant for an alleged false, scandalous and malicious libel, having for its object to injure the plaintiff in his professional character as a surgeon. No specific damages were laid, probably because the great object of the plaintiff was not the recovery of damages, but the clearing of his professional character. The trial had been expected to come on for some time past, and appeared to excite an extraordinary sensation among the members of the medical profession. All the avenues of the Court were crowded at an early hour by multitudes anxious to gain admission ; but the Court was too confined to contain more than a small portion of them. The pressure was so great that the King's Counsel were unable to get in by their usual places of entrance, and were obliged to come into Court by the passage leading to the Bench. It was with great difficulty that the officers could get the gentlemen of the Common and Special Juries into Court without numbers of the crowd breaking in by force along with them. After all several of the Common Jury could not gain admission, and it was some time before the Jury could be completed. About nine or ten of the Special Jury were at length got into the box, and the number was made up by a tales. Sir Astley Cooper, Mr. Green, and another medical gentleman sat on the Bench ; and Dr. Roget* sat at the Bar near Sir J. Scarlett."

The following were the alleged libels, which were published in Nos. 239 and 240 of the *Lancet* :—

GUY'S HOSPITAL

The Operation of Lithotomy, by Mr. Bransby Cooper, which lasted nearly one hour."

We should be guilty of injustice towards the singularly-gifted operator, as well as to our numerous readers, if we were to omit a " full, true and particular " account of this case. It will, doubtless, be useful to the country " draff " to learn how things are managed by one of the privileged order—a Hospital Surgeon—nephew and surgeon, and surgeon because he is " nephew."

The performance of this tragedy was nearly as follows :—

Act I.—The patient† (a labouring man from the county of Sussex, thick-set, ruddy and healthy in appearance, and 53 years of age) was placed on the operating table at a few minutes past one o'clock, on Tuesday the 13th. The only one of the surgical staff present, besides the operator, was Mr. Callaway. The ceremony of binding the patient we need not detail ; the straight staff was introduced, and was held by Mr. Callaway. The first incision, through the integuments, appeared to be freely and fairly made, and, after a little dissection, the point of the knife was fixed (apparently) in the groove of the staff, which was now taken hold of and the knife carried onwards—somewhere. A small quantity of fluid followed the withdrawal of the knife ; the forceps were now handed over and for some time attempted to be introduced, but without effect. " I must enlarge the opening," said the operator ; " give me my uncle's knife." This instrument was given, and a cut was made with it, without the staff being re-introduced. The forceps were again used, but as unsuccessfully as before ; they were pushed onwards to a considerable distance, and with no small degree of force. " It's a very deep perineum," exclaimed the operator ; " I can't reach the bladder with my finger."

Act 2.—The staff re-introduced, and a cutting gorget passed along it ; various forceps employed ; a blunt gorget ; a scoop ; sounds and staves introduced at the opening in the perineum. " I really can't conceive the difficulty—hush ! hush ! don't you hear the stone ? " " Dodd " (turning to the demonstrator), " have you a

* Compiler of Roget's " Thesaurus."

† The poor fellow, who has left a wife and six children, said that he " came to town to be operated upon by the ' nevey ' of the great ' Sir Arstley '."

long finger? Give me another instrument—now I have it! Good God! I can hear the stone when I pass the sound from the opening, but the forceps won't touch it. O dear, O dear!"

Such were the hurried exclamations of the operator. Every now and then there was a cry of "Hush!" which was succeeded by the stillness of death, broken only by the horrible "squash," "squash" of the forceps in the perineum. "Oh! let it go—pray let it keep in," was the constant cry of the poor man.

This act lasted upwards of half an hour, the former upwards of 20 minutes. The stone was eventually laid hold of, and never shall we forget the triumphant manner in which the Assistant Surgeon raised his arm and flourished the forceps over his head, with the stone in their grasp. The operator turned to the students and said, "I really can't conceive the cause of the difficulty," the patient being upon the table, bound, while the operator was "explaining."

The man was put to bed much exhausted, but rallied a few hours afterwards, and leeches were applied in consequence of tenderness of the abdomen. He passed a restless night, was in great pain, and was bled from the arm on the following morning. Leeches were applied in the afternoon, and about seven o'clock in the evening death ended the poor fellow's sufferings, about 29 hours after the operation.

EXAMINATION OF THE BODY

There was a very large and sloughy wound observable in the perineum, and the scrotum was exceedingly dark-coloured, from ecchymosis. The finger could be passed to the prostate without difficulty, which was not deeply situated, and it was the declared opinion of Dr. Hodgkin and Mr. Key that the patient *had not a "deep perineum."* The cellular tissue throughout the pelvis was easily lacerable, and this was especially the case with the portion between the bladder and the rectum, admitting of the passage of the finger with great facility and to a considerable distance. There was a tolerable fair lateral section of the prostate and neck of the bladder. The gland itself was larger than natural, and the portion which is designated the third lobe presented a singular appearance, being of the size of the tip of the little finger, and forming a kind of valve at the neck of the bladder; part of this third lobe had a dark-coloured appearance, and it seemed as if some substance had been resting upon it. The bladder itself presented nothing remarkable.

The peritoneum lining the abdominal parietes was highly vascular, and there was a slight quantity of turbid serum in the cavity of the abdomen. The kidneys had a mottled appearance throughout their cortical substance.

There are two or three points in this case to which we beg particular attention; first, the statement of Mr. B. Cooper, at the time of the operation, that he "*could not reach the bladder with his finger*," as contrasted with the fact of the bladder being very readily reached in the post-mortem examination, the man not having a deep perineum. Secondly, the circumstance of the finger passing with facility between the bladder and the rectum to a great depth, as considered in connection with another declaration of Mr. Cooper, that he could not feel the stone with the forceps until the time of its extraction, although a sound, passed into the bladder downwards, from the penis, struck upon the stone; as was the case also on one or two occasions, when a staff was passed at the perineal opening.

The surface of the calculus was rather larger than the disc of a shilling, flat, oval-shaped, and apparently consisting of lithic acid.

(*In No.* 240)

Our report of the operation of lithotomy at Guy's Hospital in which Mr. Bransby Cooper, after employing a variety of different instruments, extracted the stone at the end of 55 minutes—the average *maximum* of time in which this operation is performed by skilful surgeons being about six minutes†—has, as might have been expected, excited no ordinary sensation in the minds of the public, as well as among the operator's professional brethren. An attempt has been made to call in question the accuracy of our report, in a letter signed by a number of the dressers and pupils of the Borough Hospitals, which letter has been inserted, as an advertisement, in the *Times* and also in the *Morning Herald*. Some of the young gentlemen who have affixed their signatures to this letter were present at the operation; others, who were *not* present at the operation, have, nevertheless, with a generosity more characteristic of their age than of their discretion, added the weight of their testimony to that of the eye-witnesses of the melancholy exhibition, and volunteered their approbation of Mr. Bransby Cooper's performance. Upon the value of this species of testimony we shall make no comment, nor do we think it material that the document to which we allude is signed, we believe, by not more than *one-third* of the number of young gentlemen present; had they all signed it, their united opinion of the skill, dexterity and self-possession exhibited by Mr. Bransby Cooper on this occasion is not likely to influence the judgment of the profession, whatever it may effect with the public. The question to which the manner in which the late operation was performed is calculated to give rise is not a question between Mr. Bransby Cooper and his pupils, but it is a question between a surgeon, holding a high and responsible situation in Guy's Hospital, and the public. Of Mr. Bransby Cooper's amenity of manners and kindness of disposition we entertain no doubt, and the letter in question may be regarded as a testimonial of the estimation in which a good-natured lecturer is held by the young gentlemen who attend his class. But the question is not whether Mr. Bransby Cooper is popular among his pupils, but whether he performed the late operation with that degree of skill which the public has a right to expect from a surgeon of Guy's Hospital; whether, in short, the case presented such difficulties as no degree of skill could have surmounted in less time or with less disastrous consequences; or whether the unfortunate patient lost his life, not because his case was really one of extraordinary difficulty, but because it was the turn of a surgeon to operate who is indebted for his elevation to the influence of a corrupt system, and who, whatever may be his private virtues, would never have been placed in a situation of such deep responsibility as that which he now occupies had he not been the nephew of Sir Astley Cooper. This is the question, the only question, in which the public is interested, and if Mr. Bransby Cooper is desirous of bringing this question to an issue in a Court of Justice, it will be for Mr. Harrison, the Treasurer of Guy's Hospital, to enlighten the minds of the jury as to the circumstances under which the nephew of Sir Astley Cooper was elevated to his present situation. In the event of an action, we shall most unquestionably call upon Mr. Harrison to disclose these circumstances to the jury. In the meantime, we do not anticipate the decision of this question by positively impugning Mr. Bransby Cooper's skill, but we contend, as we have repeatedly

† We have frequently seen the operation performed by the Senior Surgeon of Guy's Hospital in less than one minute.

contended on former occasions, that the inevitable tendency of making the patronage of hospital surgeoncies an affair of family influence, jobbing and intrigue is to occasion a cruel and wanton augmentation of human suffering, and to render frequent such heart-rending spectacles as that which was lately exhibited at Guy's Hospital.

We repeat that there may, by possibility, have been difficulties in this case which no degree of surgical skill could have surmounted in less time or with greater ability than Mr. Bransby Cooper exhibited, and it remains to be seen whether such difficulties can be shown to have existed. At present, not a single material fact in our report is denied, though its general accuracy is vaguely questioned by the operator's pupils. It is not denied that nearly one hour elapsed before Mr. Barnsby Cooper extracted the stone. It is not denied that the operator had recourse to the multiplicity of instruments enumerated in our report. It is not denied that the patient was subjected to extraordinary suffering—suffering which could scarcely fail to terminate in death; but no attempt has been made to show that this was a case of extraordinary difficulty. It is scarcely worth while to allude seriously to the document which has been put forth by Mr. Bransby Cooper's select pupils. But as these are the only panegyrists the operator has hitherto procured, we will put a case which may enable the public to estimate the value of their approbation. Suppose it had been stated that, instead of employing 55 minutes in extracting the stone, Mr. Bransby Cooper had performed the operation in the usual time—say four or five minutes. Suppose it had been stated that, instead of manifesting great perplexity and embarrassment, Mr. Bransby Cooper had exhibited the utmost coolness and self-possession; that the patient appeared to suffer very slightly during the operation, and was removed from the theatre with every prospect of a favourable issue to the case. Let us suppose these, and similar *false* representations to have been made in this journal; and we will ask whether any of these young gentlemen, friendly as their feelings are towards a teacher, whose good nature is a matter of greater notoriety than his science, and interested as they are in obtaining his goodwill and his certificate to enable them to pass their examinations at the College before his "uncle," who is the President of that benighted body; we will ask whether any of these young gentlemen, some of whom did, and more than one-third of whom did not, see the operation, would have come forward to contradict a favourable, though a false, report? We repeat that we do not, as the case stands at present, directly and positively impugn Mr. Bransby Cooper's surgical skill, but as none of the material facts detailed in our report have been or, we believe, can be contradicted, we do not hesitate to say that, looking to the circumstances attending this and other operations performed by this gentleman, in connexion with the circumstances, we believe that we are justified, and that Mr. Harrison, the Treasurer of Guy's Hospital, knows we are justified, in saying, the extraordinary circumstances attending his elevation to his present situation, justice, humanity, the interests of the medical profession and the safety of the public at large, call alike for investigation. Whether this investigation be of a judicial character or not we are indifferent. We are prepared to meet Mr. Bransby Cooper, if he think fit, in a Court of Justice; we will meet him in our own person (for this will not be a case to intrust to a lawyer, however eminent or highly gifted), and we shall see whether Mr. Bransby Cooper will be equally prepared to meet us, the public, the relatives of the unfortunate patient, and Mr. Harrison, the Treasurer of Guy's Hospital.

The essential attack upon Mr. Bransby Cooper is in the second libel, namely, "the question is not, whether Mr. Bransby Cooper is popular among his pupils, but whether he performed the late operation with that degree of skill which the public has a right to expect from a surgeon of Guy's Hospital; whether in short the case presented such difficulties as no degree of skill could have surmounted in less time, or with less disastrous consequences; or whether the unfortunate patient lost his life, not because his case was really one of extraordinary difficulty, but because it was the turn of a surgeon to operate who is indebted for his elevation to the influence of a corrupt system, and who, whatever may be his private virtues, would never have been placed in a situation of such deep responsibility as that which he now occupies had he not been the nephew of Sir Astley Cooper. This is the question, the only question, in which the public is interested."

That was the accusation: that Bransby Cooper was an unskilful surgeon and unfit to be a surgeon at Guy's Hospital.

Before going on to the trial itself, it may not be without interest to say a word or two about the protagonists in the action.

Bransby Cooper was Sir Astley Cooper's nephew. He was a pupil at the Norwich Hospital for two years, and the Norwich Hospital had at that time, and still has, a very great reputation for experience in the treatment of stone, which is commoner in the eastern counties than in any other part of England. At the end of his two years' pupilage at Norwich Bransby Cooper came to London, where he entered Guy's as a pupil and trained for nearly two years. He was then appointed assistant surgeon to a regiment of artillery and served in the Peninsular War from early in 1813 until the Battle of Toulouse in 1814. He then served in Canada during the war, and in 1817 was apprenticed as a pupil to Sir Astley Cooper, who subsequently made him his demonstrator of anatomy. His apprenticeship terminated in 1823. On May 4th, 1825, a General Court of the Governors of Guy's Hospital was held, and the Minutes state that Mr. President acquainted the Court that they were called together at this time for the purpose of appointing Sir Astley Cooper, Bart., now one of the Surgeons of the Hospital, to be Consulting Surgeon, to elect a Surgeon to fill the vacancy which would be thus occasioned, and to elect an Assistant Surgeon, pursuant to the recommendation of the Court of Committees held on the 13th April last. Sir Astley Cooper was elected Consulting Surgeon, and the Court then proceeded to the election of a Surgeon, and the petitions of Bransby Blake Cooper and Frederick Dixon were presented to the Court respectively.

One of the Governors present requested to withdraw Mr. Dixon's petition. It was then resolved that Mr. Bransby Blake Cooper be unanimously elected Surgeon to the Hospital during the pleasure of the Court. At the same time Mr. Thomas Callaway was appointed Assistant Surgeon.

It is to be noted that Bransby Cooper was thus appointed Surgeon to the Hospital without ever having served as an Assistant Surgeon, and it may be that this unusual circumstance lent some colour to the insinuation that this rather unusual appointment was due to the influence of Mr. Bransby Cooper's illustrious uncle.

The Minutes of the Court give no further details than those set out above, and there is no mention as to the peculiar claims of Mr. Bransby Cooper to be made a full surgeon forthwith.

Thomas Wakley, who is described in the "Dictionary of National Biography" as a "medical reformer," studied surgery in London from 1815 to 1817. He practised surgery in London from 1818. He became acquainted with William Cobbett and founded the *Lancet* in 1823 to, in the words of the "Dictionary of National Biography," "report medical lectures and hospital cases and to expose nepotism in hospital appointments."

In his evidence before the Court Thomas Wakley stated that the *Lancet* had been established by him and he had thought himself fully entitled to publish from time to time what was passing at Guy's Hospital and other hospitals of a similar description, because these were matters which were public property, and matters also in which the public were deeply interested and with which it highly imported them to be intimately acquainted. It was of the last consequence to the public in general, as well as to medical men, to know what were the theories promulgated in the lecture room, and to be enabled to contrast these theories with the practice in the ward-room, and then to judge whether the practice was one to be followed or one to be neglected. And this publicity was of great importance to the public, because it was in some degree a security that the skilful only would be admitted to these institutions, and that the unskilful would be excluded.

But to come to the trial. This commenced, as usual, with an argument on various legal points, principally as to procedure, viz., as to who should commence the case. Lord Tenterden decided that the defendant should commence.

Mr. Wakley then addressed the jury and, after giving his conception of his duty to the public as outlined above, said that for the purpose of conducting his publication he had engaged a number of gentlemen as reporters, and it was their business to observe in what manner the duties of these public medical and surgical institutions were performed, and to judge with discrimination, and to report with candour. The report in question (the libel) had been sent to him by a gentleman of very high character, who had assured him that the report was in every respect correct. He did not think it necessary at that stage to take up the time of the jury longer, as the learned Counsel would have an opportunity of examining his witnesses and he (Mr. Wakley) would then have an opportunity of again addressing the jury.

The first witness was Alderman Partridge, who was in practice as a surgeon in Colchester, and stated that he had seen many operations of this kind, and had performed them himself 18 or 20 times. He saw the report in the *Lancet* and believed it to be substantially correct. He stated that Mr. Bransby Cooper appeared to be flurried, and introduced his finger with some force. He could not say that the operation was skilfully performed; it was not performed in a manner which the public had a right to expect from a surgeon of Guy's Hospital. The average time for operations of this kind was five minutes, and an hour was occupied with this operation.

In cross-examination, he stated that he was standing at the time of the operation close to Mr. Cooper's chair, and he (the witness) had no doubt but that the stone was at the top of the bladder, and he did not understand how any other skilful person could doubt it.

The second witness was Mr. John Thrapham, or Clapham, who resided in the country, but had studied surgery in St. George's Hospital. He said that Mr. Bransby Cooper spoke of the difficulty of the operation and that he could not feel the stone with his forceps. He heard the operator ask Mr. Callaway whether he had a long finger, and saw him measure fingers with Mr. Dodd. The operator appeared to be confused and hurried. He never saw the operation performed with so much violence, and he thought it hardly possible that the patient could live after such an operation.

On cross-examination it appeared that he was 20 years of age in the previous January, and was a pupil at St. George's Hospital. He was a member of the Society of Apothecaries, and had represented that he was 21 years of age, which was not correct; he had the certificate of the clergyman of his parish. Lord Tenterden here remarked that this had better go no further, for he was bound to say that anyone giving a false certificate was liable to be indicted and punished.

Mr. Jehoiacim Gilbert, a member of the Royal College of Surgeons, next gave evidence. He said he only saw part of the operation, as he remained only 25 minutes, and the reason for his

going away was that his feelings would not permit him to look at the manner in which the operation was performed. The operator used great and unnecessary violence. Mr. Cooper made several incisions, and he then called for Sir Astley Cooper's knife and made a cut with it, and again pushed in his finger, but did not succeed in extracting the stone. Mr. Cooper then began to be very much confused, his hand shook and his face and lips turned pale. The witness then left the theatre. He thought the operation very badly performed.

In cross-examination he stated that he was an assistant in the country to a surgeon who was married to a relation of Mr. Wakley. He could swear that the forceps was poked in with unnecessary violence, for he stood about a dozen feet from the operator, on the first row of benches.

The next witness was Mr. John Thomas, who said he was a demonstrator of anatomy in Mr. Sleigh's school in the Borough. He stated that he never saw the operation performed in so bungling a manner and so unscientifically.

Mr. Jeffry Purl stated that he saw the operation in question, and had read the report in the *Lancet*. He was not aware of any incorrectness in the report except that Mr. Bransby Cooper said, "Give me Sir Astley Cooper's knife," instead of "my uncle's knife." He gave some further details as to the actual performance of the operation, and stated that he thought much violence was used. He did not conceive Mr. Bransby Cooper to be a good operator by any means. He had been a pupil at Guy's for more than a year, but was not a member of the College of Surgeons.

In cross-examination it appeared that he was introduced to Mr. Wakley by a Mr. Lambert at the house of the latter, but did not know that Mr. Lambert was the author of the report. Mr. Wakley and Mr. Lambert believed that the forceps passed between the bladder and the rectum, but they did not endeavour to persuade him to state that. He would not state any opinion as to whether the forceps passed between the bladder and the rectum.

At the post-mortem examination he saw Mr. Lambert pass his hand between the bladder and the rectum, and take it up to Dr. Hodgkin and say, "Here is an opening between the bladder and the rectum." Dr. Hodgkin said he would not permit anyone to come here and spoil the preparations, particularly persons who did not belong to the Hospital. He did not hear Dr. Hodgkin say, "Friend, thou hast made that opening thyself." He did not believe that Lambert made any opening himself.

It may be at this stage convenient to refer to Dr. Hodgkin's post-mortem report, as it was quite clear as the case proceeded that the suggestion was made that, owing to Mr. Bransby Cooper's violence and lack of skill, he had made an opening between the bladder and the rectum instead of going straight into the bladder, and this injury had been the cause of the patient's death.

Dr. Hodgkin's account of the post-mortem examination is on page 152 of Volume 5 of the Post-mortem Records in the Museum.

The following is the report :—

EXAMINATION OF STEPHEN POLLARD, a patient of B. B. Cooper's on whom the operation of lithotomy had been performed. He was upwards of 50 years of age and was rather plentifully supplied with fat. He came up from the country to undergo the operation and was admitted on the 7th March, 1828, into Luke Ward.

The straight staff and C. A. Key's knife were employed. The bladder was opened without difficulty, but the attempts to remove the stone were for a considerable time ineffectual. Notwithstanding it could be felt, though with some difficulty with the staff, it continued to elude the forceps; the patient survived 32 hours.

For further particulars respecting the operation and the symptoms which succeeded it see Mr. Smith's report.

Great objection was made to the inspection of the body, but permission was at length obtained to examine the parts concerned in the operation. This was done about 60 hours after death.

The peritoneum at the lower part of the abdomen as well as that portion which lines the parietes, as that covering the intestines was minutely injected. In the pelvis there was some sero-sanguinolent effusion, very slightly puriform and unmixed either with lymph or flocculi. Behind the peritoneum in the posterior part of the left iliac region there was some echymosis. The cellular membrane behind the peritoneum in the pelvis was extremely lacerable, readily breaking down under the finger, and scarcely requiring the use of the knife for its removal except under the pubes. There was a free division of the prostate, and a clean cut in the bladder; the mucous membrane of which was generally healthy. Immediately behind the meatus urinarius there was a small tongue-shaped body which, on the opening of the bladder and when obscured by coagula, was considered to be the third lobe of the prostate, but a more careful examination proved it to be a small flap composed of a portion of bladder and prostate and which had been formed by an incision communicating with the first about an inch in length, and a third of an inch behind the opening of the meatus. There were a few spots of echymosis and abrasion comprehended in a space about the size of a shilling around the orifice of the meatus. The edges of the incision from the external opening to the bladder were ragged and intermixed with adherent coagula of blood, a state which was unavoidably produced by the repeated introduction of the forceps and other instruments which were had recourse to in the attempts to remove the stone.

In this preparation a passage exists at the side of the bladder. This was not noticed by Dr. Hodgkin till after it had been in the hands of the reporter of the *Lancet*, and from the extremely lacerable state of the parts it might easily have been formed after the removal from the body.

That it was either formed then or in the act of removing them is an idea which the absence of coagula tends strongly to confirm.

Besides the injection of the peritoneal coat of the small intestines the internal membrane was of a diffused red, the rectum was perfectly sound and healthy with the exception of a very slight appearance of piles.

The kidneys were of moderate size, soft and flabby, and in an advanced stage of the light mottling deposit described by Dr. Bright.

This case resembles all those of unsuccessful lithotomy which I have myself had an opportunity of examining both in the peritoneal inflammation and in the extensively lacerable state of the cellular membrane behind the peritoneum. Similar results have, I believe, invariably been found by C. A. Key in this country and by my friend Hervey de Chegrin in Paris.

The peculiar degeneration of the kidney observed in this case was likewise met with in a patient of C. A. Key's who died after operation for the stone, and has likewise been found in others who have sunk after operation or accident.

It will be noted that Hodgkin, at the time of the post-mortem, had well in mind the imputation that Mr. Bransby Cooper had caused an injury between the bladder and the rectum, and took care to make a note in the post-mortem report that this passage was not noticed by him until after it had been in the hands of the reporter of the *Lancet*.

The next witness was Mr. James Lambert, who made the report which constituted the libel. He assured the Court that his report was an under- rather than an over-statement. He said he saw the post-mortem examination, and that when he went into the demonstrating room several pupils followed him. He saw the body of the patient lying on the floor, but the parts had then been removed from the corpse. He asked to see the morbid parts, and on their being shown to him he attentively examined them in the presence of the pupils. His attention was principally directed to any difficulties that there may have been in the operation. He found the prostate gland rather larger than ordinary, and on passing his finger at the under side of the bladder he found that it passed with the greatest facility between the bladder and the rectum. He stated on his oath that he had not used the slightest force in passing his finger up, nor did he break down the slightest obstruction. He was going on with his examination when Dr. Hodgkin came to him very angrily after he had pointed this out to the pupils with his finger between the bladder and the rectum. The doctor said: "I wish people would not come here and pull things about, that have no business," and then he said that somebody had broken down the fungus body (*sic*). But the witness was conscious that he had never touched it, but only looked at it, and assured Dr. Hodgkin that he had only examined the preparation, and used no violence whatever. He discovered nothing in the post-mortem examination to account for the delay in the operation. He did not think that Mr. Cooper was a good operator. He once saw him tie the subclavian artery very skilfully, but that was not a difficult operation to a man who had any nerve. He did not consider that Mr. Cooper's surgical abilities were adequate to the office of surgeon at Guy's Hospital.

On cross-examination he stated that he was a surgeon, and had been in the profession about 13 years; he felt himself more competent than Mr. Cooper.

He was cross-examined as to whether he had not previously had a quarrel with Mr. Bransby Cooper, who had threatened to turn him out of a room, and he denied saying in an altercation with Mr. Cooper at St. Thomas's Hospital that he would wait his opportunity and make him repent it. He did not intend to convey the impression that Mr. Cooper had murdered the man, but he intended to convey the impression that the man lost his life from want of skill. It was his note at the bottom of the report that the man said he "came to be operated on by the 'nevey' of the great 'Sir Arstley'." He said he did not lay a single bet on the issue of this case, though he may have said that the odds were so-and-so. He stated that he had been refused permission to go to Guy's and St. Thomas's Hospitals in consequence of this report, and that he had been turned out of the Middlesex Hospital about four years previously.

The next witness was a Mr. Alexander Leigh, who stated that he was a surgeon, and had been in practice for five years. His evidence was much the same as that of the other witnesses, to the effect that the operation took a very long time and he saw no reason for the delay. He believed that Mr. Callaway was a better surgeon than Mr. Cooper.

On cross-examination he stated that he had been a clerk as well as a surgeon, and had also been a potato-merchant ten or twelve years ago. He agreed that when an operation was in hand there was no one who could explain the difficulties that occurred so well as the operator himself, and it often happened that what appeared ambiguous to a bystander the operator might be able to explain. He thought Mr. Bransby Cooper owed it to himself and to his class to explain the cause of the length of time taken at the operation.

The only other witness for Mr. Wakley was a Mr. Thomas Bolton, whose evidence was practically that of all the other witnesses.

Mr. Benjamin Harrison, the Treasurer of Guy's Hospital, then went into the box. This was the

great Benjamin Harrison, known as "King" Harrison, who was Treasurer and autocrat of Guy's Hospital from 1797 until 1848. An indication of his plenary powers is given in the Report upon Guy's Hospital by the Charity Commissioners in 1840. The Commissioners say :—

"One most important subject yet remains to be noticed, namely, the absolute and uncontrolled authority which is practically enjoyed by the present Treasurer in every department of the charity; not only are the administration of the hospital and the management of the funds entirely in his hands, but the nomination of governors seems mainly to rest with him, a list being usually tendered by him to the other governors. . . .

"It has already been mentioned that the entire control of the medical school has been formally delegated by the other governors to Mr. Harrison in his private and individual capacity. He names the lecturers and exercises a sovereign and irresponsible authority in the distribution of the funds arising from the pupils' fees; so large a concession appears to us unjustifiable. Not only is this great school of medicine thus wholly delivered up to Mr. Harrison's discretion, but the physicians and surgeons of the hospital being practically selected from the lecturers in the school, their nomination is virtually surrendered to him. . . .

"In submitting these remarks, it is but justice to Mr. Harrison to state that his whole time, talent and energies have for above forty years been devoted to the service of the hospital, and that the entire course of his administration has been marked by zeal the most active and efficient, as well as by the most scrupulous and disinterested integrity."

Mr. Harrison informed the Court that he had held the office of Treasurer of Guy's Hospital for 31 years, and that he had the names of the Governors who voted for the appointment of Mr. Cooper, and had also brought the preparations taken from the body of the patient. He stated that it was never the custom of the Institution to advertise the vacancy of any office, and that in electing Mr. Bransby Cooper the Governors considered that he was perfectly competent for the situation, and that he had every testimonial that was necessary. None of the Governors were surgeons, and the Governors did not choose from their own information, but from the circumstances that were laid before them. There was no obligation on the Governors to elect surgeons from their own apprentices. Mr. Bransby Cooper would have been elected to the office of surgeon in preference to Mr. Callaway even if he had not been the nephew of Sir Astley, as he was peculiarly qualified for the office.

Mr. Benjamin Harrison was then asked by Mr. Wakley if he thought Mr. Cooper's surgical skill was superior to that of Mr. Callaway. Lord Tenterden thought that that was a very invidious question, and that the witness was not bound to answer it.

Cross-examined by Sir James Scarlett, Mr. Harrison stated that Sir Astley Cooper did not know that the Governors intended to elect his nephew till it took place, and that Sir Astley Cooper neither suggested the arrangement nor the man. He stated that Mr. Cooper had always maintained that reputation which induced the Governors to choose him as a surgeon.

Mr. Harrison then produced the preparation from the post-mortem showing the parts concerned in the operation. This preparation was in the Museum for many years, but has unfortunately been cast away at some time when the Museum was being re-catalogued, possibly in ignorance of its historical interest. That is the reason why only the stone is before you this evening.

The report states that the preparation was here produced, but as it was past six o'clock and the Court lit up with only half a dozen candles, it was not seen to advantage. There was a glass cylinder, a tin cover, and something floating in a transparent fluid within. That was all that the *Morning Chronicle* reporter could discover.

Mr. Wakley then stated that this was the whole case which he had to submit to the jury.

Sir James Scarlett then addressed the jury on behalf of Mr. Bransby Cooper.

He made a long speech in the best style and tradition of the 18th-century Bar. He stated that the time had at length come when the Plaintiff was entitled to lay before the jury the grounds on which he sought redress for one of the most injurious attacks upon his fame and fortune that ever appeared in a Court of Justice, invented by falsehood and malice. He complained that great prominence had been given in the evening press as to the case now before the Court, and he stated that he was no enemy to the periodical press, far from it, though he had never flattered it, and never would do so; though he would say that the example of this proceeding had given it a triumph and an interest which it had never had before. He gave a short account of Mr. Bransby Cooper's education and surgical career, and made some comment on the recent quarrel between Guy's Hospital and St. Thomas's Hospital, stating that there had never been an attack upon the Governors until they thought it expedient for the advantage of their Charity to establish a School of Anatomy

as well as that which existed at St. Thomas's. He asked who it was dared complain that the Governors did not advertise in the newspapers and ask some information from the *Lancet* as to where they might obtain a surgeon. The Lamberts and the Wakleys might then have been called forth from their dark places to have been made surgeons to this Hospital. It was not from the school of Cline, of Cooper, of Green, no, nor even Mr. Callaway himself, that they ought to elect surgeons; no, it was from newspapers in the shape of the *Lancet* that they ought to obtain information on such a point. He strongly traversed the allegation of Mr. Wakley that Bransby Cooper was appointed because he was the nephew of his distinguished uncle. He then went on to criticise Mr. Wakley for his action in publishing lectures of surgeons to their pupils at the various medical schools in London, and accused Wakley of plundering the property of others for the purpose of assisting himself, as these reports of lectures made the *Lancet* worth £5,000 or £6,000 a year to the editor. He stated that Mr. Wakley had called but two witnesses who deserved the least credit; one was Mr. Alderman Partridge, who was a surgeon, and the other was a surgeon and also a dealer in potatoes. (A laugh.) He asked the jury what they would say now of the different situations of surgeons if all the esteem of the public might be knocked down and a man, if he had the misfortune to offend Mr. Wakley, the editor, or some contributor to the *Lancet*, was to be held forward to the public as unworthy of the situation which he now held?

Sir James Scarlett went on to speak of Mr. Bransby Cooper's skill and experience in operations for stone, and called the attention of the jury to the fact that the improved surgery of modern times had resulted in the number of those dying in comparison with those who were saved being very few to what it was formerly. He then gave a long description of the actual operation itself, setting out the difficulties of the operation and the reasons why Mr. Cooper had not been able to extract the stone without great difficulty. The reason was that the stone lay upon the shelf formed by the anterior wall of the pelvis, and it was this which had made it difficult to extract the stone with forceps. He stated that it was an utter falsehood to say that any force was used. He called attention to the fact that the kidneys were diseased, and that alone might have contributed to the man's death without the operation having been performed at all. Dr. Hodgkin had made an observation that the membrane between the bladder and the rectum might easily have been broken, and yet was perfectly sound. He reminded the jury that as soon as Dr. Hodgkin turned his back Lambert took up the part and exclaimed, "There is an opening between the bladder and the rectum," upon which Dr. Hodgkin, who was a Quaker, immediately replied, "If there be an opening, friend, it is thyself has made it." Mr. Key and Dr. Hodgkin in their evidence would prove that there was no such opening when they had examined the part immediately before. He asked the jury what they would think of the taste of a man who would witness such an operation and would then have turned a description of it into dramatic form.

Sir James Scarlett stated that the libeller was now in Court, and openly avowed that he did publish this and it was true, and that Mr. Cooper was an unskilful man and most unfit to be surgeon at Guy's Hospital. The first and most competent person to be placed in the witness box was the author of the libel himself. That man was Lambert, and it was admitted that he had upon two occasions differences with Mr. Cooper. He was suspected of contributing to the *Lancet*, and it now turned out that he was receiving eight guineas a month for his contributions, and more according to the quantity of the matter he supplied. At a dinner at Guy's Hospital he gave offence to the company, and was ordered by Mr. Cooper and others to leave the room. Efforts were made to extract that fact from Lambert at his examination, and at length he said that on finding his presence disagreeable he left the room. He reminded the jury that he did watch his opportunity after this quarrel of destroying Mr. Cooper. He went to the man who gave him eight guineas—a thing which no surgeon who has the slightest pretensions to respectability would think of accepting, and says on his honour to Wakley, "This report is true." Lambert puts his finger in between the bladder and the rectum and then says Mr. Cooper had forced the forceps in that direction—a statement which, unless he was ignorant beyond what could be supposed, he must himself have invented for the purpose of destroying the reputation of the individual towards whom he had before vowed vengeance. He stated that the only respectable witness produced by the defendant was Mr. Partridge, and if he possessed, as it was hoped he did, that sense of justice and good feeling, he would profit by the lesson now offered to him never again to judge rashly of the skill and knowledge of any other professional man without first giving the opportunity of explaining what difficulties might have presented themselves to him at any operation which might at first view appear to Mr. Partridge as being unskilfully performed

Sir James Scarlett then went on to name the witnesses whom he would call on behalf of Mr. Bransby Cooper (Bransby Cooper himself did not go into the box), and stated that he did not ask for a large sum for damages, as it was only Mr. Bransby Cooper's desire to clear his reputation against these sordid calumnies.

Thomas Callaway was then called, and stated that he was assistant surgeon at Guy's Hospital, and had been in the profession for 17 years. He was present at the operation, which lasted about 50 minutes, and he held the staff which had been passed into the bladder and very distinctly felt Mr. Cooper touch with his knife the groove of the staff which he held in his hand. He gave various technical explanations of the actual steps in the operation, and said that he saw nothing at the post-mortem examination which would make him doubt that the operation was properly performed. He stated that he had always been of the opinion that Mr. Cooper was a very skilful surgeon, and though he and Mr. Cooper might differ on some points of science, on the more important points the witness had the highest reliance on Mr. Cooper.

He had no recollection of saying that it was an infamous job putting Mr. Cooper over his head. Like all other disappointed candidates he, no doubt, felt that he ought to have been elected. He had never threatened to publish an account of the corrupt system carried on at Guy's Hospital. He was at the Kent Medical Dinner about three weeks previously, and Dr. Haslam asked him if he had not said that he wished Mr. Cooper had a large fortune, and had never been a member of the profession. He answered that he wished Mr. Cooper had a large fortune, and he wished so now. He wished him to have a large fortune so that he (the witness) might be surgeon, instead of assistant. He never said that Mr. Cooper was fitter to spend a large fortune than to be surgeon at Guy's Hospital.

In reply to a juryman he stated that it was not possible before the operation accurately to ascertain the situation of a stone, and there was always greater difficulty when the stone was in the anterior part of the bladder. It was his opinion that the use of the sound did not contribute to place the stone where it was found.

Mr. Charles Aston Key then gave evidence, and stated that he was senior surgeon at Guy's Hospital and had performed between 50 and 60 operations for lithotomy himself. He gave general evidence as to Mr. Bransby Cooper's skill, though he did not see the operation himself. He saw the body after death, however, and from that examination he saw no evidence to induce him to believe that the operation had not been scientifically performed. If any great violence had been used he would have discovered it. He said that Mr. Cooper's time in operating was on an average equal to that of other operators. He had assisted Mr. Cooper in the operation of tying the subclavian artery, and never saw an operation better performed in his life. He stated that he had performed 40 operations for lithotomy at Guy's Hospital, and had lost three, and that the major part of the cases were young persons.

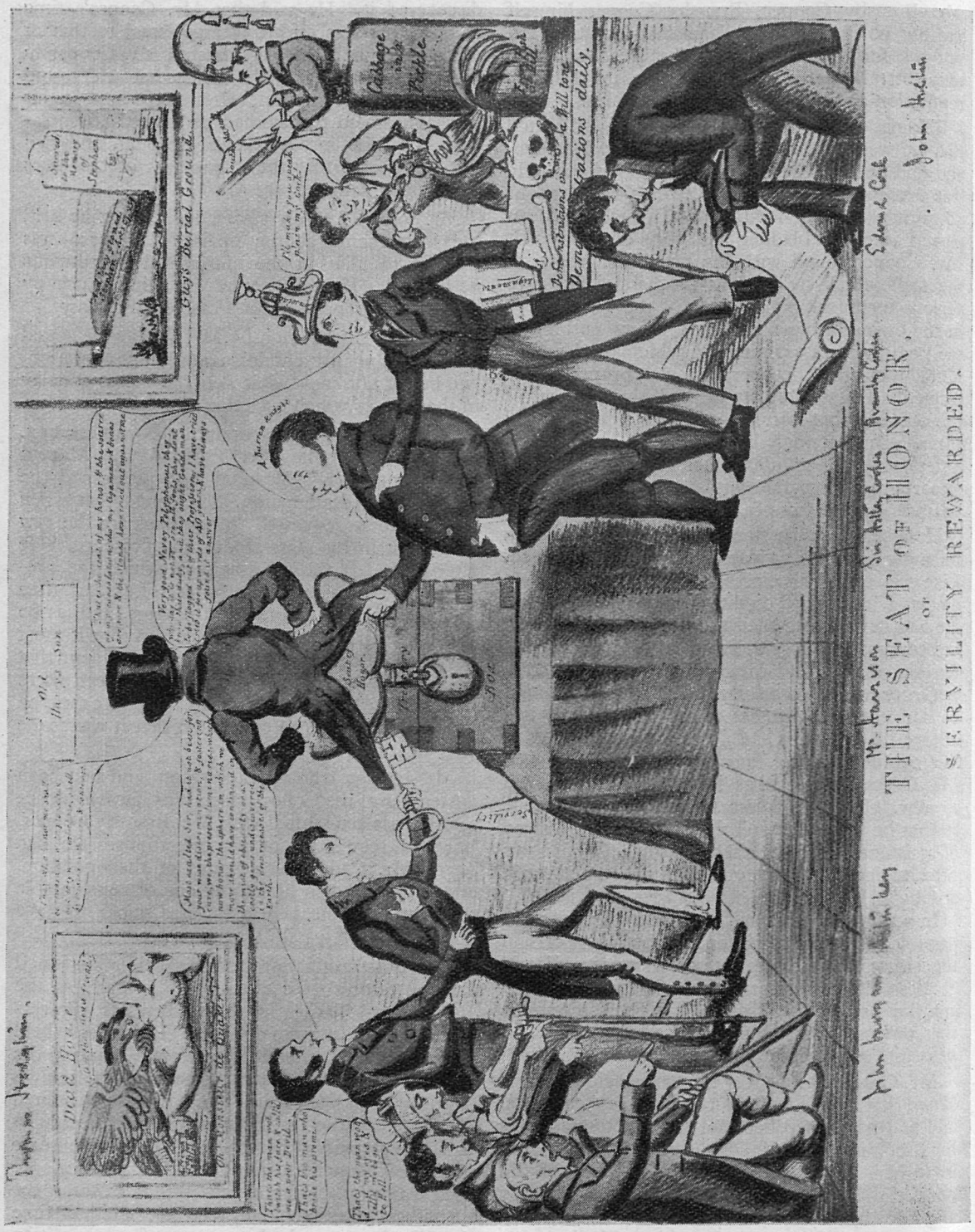
Mr. Joseph Laundy gave evidence that he held the instruments at the operation. There was nothing peculiar in the number of instruments he handed. He had known Mr. Cline to occupy two hours in operating in a case of lithotomy.

On cross-examination by Mr. Wakley he stated that he was not present during the whole operation, and he did not know what were the causes of delay in those cases which occupied more than an hour.

Dr. Hodgkin then went into the witness box. He stated that he was Professor of Morbid Anatomy at Guy's Hospital, and performed the post-mortem examination. He stated that when Mr. Lambert requested to see the parts he saw them first in his (Dr. Hodgkin's) presence. He afterwards left the apartment in which the preparation was to wash his hands. Lambert then told him that he had found a passage, and, as he had not seen it before, it struck him that it must have been made by him. He was confident that he had not seen it before. If it had been there he could hardly conceive how it could have escaped him. It was his firm conviction that it was made after death.

Mr. Brodie, who was a surgeon, and had been a Member of the College since 1805, gave evidence that he was acquainted with Mr. Bransby Cooper, but had seen none of his operations. He had heard Mr. Callaway's account of the operation, and it appeared to him to be one of considerable difficulty, and he believed Mr. Cooper to have conducted it in a skilful manner.

In cross-examination by Mr. Wakley he stated that he remembered attending a meeting at the Freemasons' Tavern in 1825, when Mr. Travers and Mr. Green were present. It was one held when the publication of lectures was begun in the *Lancet*, and the lecturers considered themselves aggrieved by that publication. It was considered a common cause to obtain an injunction against the *Lancet*, and either there or elsewhere there was an agreement to pay the law expenses. He paid a portion of the expenses that arose on the second application. He was not at that time contributing towards the support of an opposition


THE SEAT OF HONOR,
OR
SERVILITY REWARDED.
Guy's Burial Ground.
Cabbage with Pickle
Demonstrations daily.

journal; he did at its commencement contribute to enable the editor to set it on foot.

Mr. Travers, who stated that he had been in practice since the year 1800, was a member of St. Thomas's Hospital, and heard the evidence given by Mr. Callaway and Mr. Key. In taking their evidence for granted he had not heard any circumstance to impeach the skill of the operator. He stated that they had had a consultation at St. Thomas's Hospital on the subject of the *Lancet*, and he had read the report in the *Lancet*; it was not a full, fair, correct and accurate account of what took place, not such as a professional man would have published.

On re-examination he stated that a surgeon never operated for the stone without other surgeons having previously sounded, and been of the opinion that the stone existed. He would not venture to give an opinion on the science of another man without consulting him as to the difficulties. He would blush for any professional man who would draw up such an account.

Mr. Green, a surgeon at St. Thomas's Hospital, gave general evidence as to Mr. Cooper's skill, though he never saw him perform but one capital surgical operation, that of tying the external iliac artery, and that was admirably well performed.

Dr. Babington, Physician at Guy's Hospital, stated that he knew the plaintiff, though he had never seen him operate, but had great opportunity of being satisfied as to his skill. If he had not believed that he was perfectly competent to the duties of his situation, he would not have placed his own son under him as an apprentice.

Dr. Roget stated that he was a physician and had frequent opportunities of seeing Mr. Cooper, and as far as those opportunities went he had formed a high opinion of his skill and judgment.

In cross-examination he said he thought he could form an opinion of the merit of the report without having seen the operation.

Mr. John Morgan, who stated that he was Secretary to Guy's Hospital, said that he had frequently seen Mr. Cooper operate, and had the highest opinion of his skill as an operator and surgeon generally.

Mr. Hilton, who stated that he was assistant demonstrator at Guy's, gave evidence that he was present at the post-mortem examination, and passed his finger from the external wound into the perineum and could not reach the bladder.

Sir Astley Cooper than went into the witness box. He stated that he was subpœnaed by Mr. Wakley; that he had heard the account given by the Treasurer of Guy's Hospital of his nephew's education, and it was perfectly correct. If he had deemed him incompetent for the situation, the jury might rest assured that if it was in his power to prevent it, although the plan was not his own, he would never have been surgeon at Guy's. The plan was entirely that of the Treasurer and Governors. Although it was egotism, he wrote that he should have no objection to the plan being carried into effect, because he thought it would be conducive to the interest of the Hospital. He stated that he had performed 18 operations for stone in one year, but he would not like on his oath to say how many hundreds he had performed in his life. Nothing was a greater deception on the public than to say, "I have performed an operation in so many minutes." That was not the criterion. To mention cases very applicable in this Court, he had operated on two very eminent lawyers—the one Mr. Serjeant Lens, the other the Master of the Rolls. In the former case the operation was performed in two minutes, while the latter occupied rather more than half an hour. He was tried in the one operation, but a child might have performed the other. No man could be a judge of the operation of the stone who had not performed it, and no man could be a judge of the difficulties of a particular case but the operator.

In cross-examination by Mr. Wakley he stated that he did not think that he had given a description in his lectures of any case similar to this. He had described bungling operations, because he had always thought it his duty to state the case plainly to his pupils; and with that feeling he may have said that a great surgeon, like a great general, must wade up to his neck in blood to obtain his eminence. He liked to state the thing openly. (A laugh.)

Sir Astley Cooper gave further details as to the difficulties which might occur in the operation for stone; and he thought there were many inconveniences in sending a patient back to bed and operating on him a second time. It was no pleasant thing to have a pair of forceps in your bladder or a sound passed through the urethra, and no man who had once felt it would like to have it come there again.

Mr. Dalrymple, the senior surgeon at the Hospital at Norwich, gave evidence that he had had a large experience in lithotomy, and their cabinet contained 659 specimens. He remembered Mr. Cooper belonging to the hospital, and he thought him a remarkably clear, quick, intelligent boy, and wished very much that he had been his pupil.

In cross-examination he stated that his son was not at Guy's Hospital.

Mr. John Watson, the Secretary to the Court of Examiners in the Apothecaries' Company, gave evidence as to John Clapham coming to be examined on the 24th April; his recommendation

That cursed Lancet has cut so deep, I fear the wound will never be closed ——Oh! my posteriors!— My Seat of Honor!—My latter end!— Oh! dear— Oh! dear—Oh!
A Lancet is far superior to a Coopers Adz it is so sharp- at the point—besides it will perform a Scientific Operation with Expedition!
Tinker Fecit

Pub.d Dec.r 29 1828 by J. Fairburn Broadway Ludgate Hill London

The Cooper's Adz !! versus the Lancet !!

as to morality came from Mr. James Lambert, of the Walworth Road.

Mr. Wakley then made his final reply in defence. He commenced by stating that Sir James Scarlett in his address to the jury had thought proper to bestow on him almost every vituperative epithet he could think of. He had called him a plunderer, a literary pirate, and had accused him of keeping a set of young men, almost the outcasts of their profession, with a view to aggrandise himself by the result of their labours. He did not know whether Sir James Scarlett had founded his statements from report, or from the instructions of his client. If the former, the learned gentleman had shown his indiscretion; if the latter, his client had shown a still greater want of discretion. He traversed the view of Sir James Scarlett that lectures which were delivered in public were the copyright of the lecturers, and held that he was perfectly entitled to report them. He called the attention of the jury to the fact that it was most remarkable that out of 200 persons who were present at the operation, the plaintiff had thought proper only to call one, a solitary one (this was Mr. Callaway) to give evidence as to his skill; while a whole host of persons who knew nothing at all of the operation were called to support the plaintiff's character, among whom were Sir Astley Cooper, Mr. Green and Dr. Babington; he wondered, for his part, that there were not added to the list the Emperor of China and the Great Mogul. Sir James Scarlett in his address had thought proper to dwell at great length on the person whom he chose to call "the hireling Lambert," but Sir James should remember that in this case he himself was a hireling, had received his fee, and was working for the sake of filthy lucre. Yesterday he had taken the liberty of assuring the jury that he had every reason to believe that the whole of the statement in the *Lancet* was true; and he might now say that not one single fact had been contradicted. What he entreated the jury to do was to ask themselves whether they would be willing to employ Mr. Cooper were it necessary for them to undergo such an operation; and if they would not he would then ask them what right they had to send him back to Guy's Hospital to torture his unfortunate fellow-creatures. For his own part he had not words to express the disgust with which he had listened to the evidence given by the gang of hospital surgeons produced by Mr. Cooper. They stuck to him, and for a good reason; because they knew that his case now might some day be theirs. They had come there to swear down the actual spectators of the operation; they had come there to bear down the weight of honest testimony by their names—not by their talents; for it did not always happen that great names and great talents went hand in hand. If the jury, after listening to the whole of the evidence, would decide that they were willing to submit to Mr. Cooper's operations as a surgeon, he (Mr. Wakley) was willing to give up the *Lancet* and to go anywhere, even to a dungeon; but he trusted that the jury would overturn this gang of surgeons, that wanted to support one another's malpractices. He trusted that they would in future prevent the poor from being hacked and hewed in hospitals.

The defendant suddenly paused, and exclaiming, "Gentlemen, I have done," he sat down. In the course of his address to the jury he was so overpowered by the heat, pressure and fatigue that he obtained leave from the Court to withdraw for a few minutes.

Lord Tenterden then proceeded to sum up, and turned the hose of common sense upon the case. As to the report, he thought there could be no question that it was drawn up in an unprofessional manner—in such a way as no one would have done with a real sense of propriety. The defendant had objected that only one of those who had been present at the operation had been called by Mr. Cooper, but he did not see whom Mr. Cooper could with propriety have called besides Mr. Callaway; the others were all young men, only pupils, and probably too young and inexperienced to form any judgments on the case that could be reasonably relied on. The question was one of the greatest interest to the public, and to Mr. Cooper himself. It appeared on nearly all hands that the operation was one of great difficulty, one in which the most able surgeons were liable to fail. It also appeared that the length of time occupied and the number of instruments used was no criterion of the want of skill of the operator. If the jury thought that the defendant had proved the unskilfulness or unsurgeonlike conduct of the operator, they were bound to give him their verdict. If, on the other hand, they were of opinion that that had not been made out, they must return their verdict for the plaintiff, and in that case they would have to consider what damages the case required. The report certainly placed an imputation on the professional character of the plaintiff, and as the work was in large circulation, if the jury believed that the defendant was in fault, they were bound to give the plaintiff such compensation as would meet all these circumstances. They were to look at the whole of the circumstances with coolness and consideration, and that would lead them to the proper amount of damages.

At a quarter to nine o'clock the jury retired, and did not return into Court till five minutes to

Some of Astleys performers
coming on the Generals ups to
their necks in Blood &c
Give me thy gold – if thou hast any Gold,
For I have bought it with an hundred blows – &c.
Will this add to the reputation?
My Knees
Pickle

BARNEY the COOPER or the HEAD of the GUY'S performing his LAST OPERATION, Pub by Mc Lean 26 Haymarket

eleven o'clock, when they delivered a verdict for the plaintiff, damages £100.

Here the case ended in the Law Courts, but it did not end as far as the public was concerned, for it was quickly followed by the publication of several caricatures of the vulgar and scurrilous character that was common in the days of the Regency. Some of these caricatures hang in the Fellows' Tea Room of the Royal Society of Medicine. The most interesting is the one called, "The Seat of Honour, or Servility Rewarded." Like many of the caricaturists of this period the artist had no real knowledge of the appearance of the persons whom he was caricaturing, and had to identify them either by puns, labels or by sentences (vulgarly known as "bladders") issuing from their mouths. In the centre of the caricature is "Old Harry's son," Benjamin Harrison, seated on the Treasurer's box of Guy's Hospital, and displaying the "seat of honour" to the sycophants around him. Sir Astley Cooper and Bransby Cooper are easily recognisable on the right. The man on the left with the key is obviously Mr. Aston Key, and behind him is Mr. John Morgan. Behind Bransby Cooper on the right is Edward Cock (identifiable by the cock he is holding), and below him is Mr. John Hilton. The figure in the dunce's cap has been identified in the Royal Society of Medicine with Mr. John F. South, but I myself do not exactly see the connection. The picture in the top right-hand corner is the supposed grave of the patient, Stephen P., and the inscription on the grave is, "And they stoned Stephen" (Acts, ch. vii, v. 59). The significance of the picture at the top left-hand corner has not been appreciated by the Royal Society of Medicine, as there is no note about it, but it obviously represents Thomas Hodgkin, the Quaker, as the vulture in the post-mortem room.

The other caricatures are labelled, "The Cooper's Adz *v.* The Lancet," showing Bransby Cooper being punctured in the nether part of his anatomy by a person representing Wakley, who is saying, "A Lancet is far superior to a Cooper's Adz, it is so sharp at the point, besides it will perform a scientific operation with expedition"; and the third one shows "Barney the Cooper" as the head of Guy's performing his last operation, which is cutting open Wakley's purse labelled, "A Sovereign Remedy for Curing Wounded Reputations," with his uncle's knife, and behind him a cohort of pupils of the Hospital labelled as "Some of Astley's performers coming on like generals up to their necks in blood."

After a lapse of a hundred years, when one can view all the circumstances without passion, what is the conclusion that one can draw from this celebrated but unedifying case? I think there is little doubt that in one respect Wakley was right, and that Bransby Cooper was elected to the Guy's Staff as a full surgeon without ever having become an assistant surgeon because he was the nephew of his uncle. This, however, is no reflection upon his competence, for he was a very skilful surgeon.

The rest of the circumstances throw a vivid light on what one might call the vulgarity and brutality of the age. Can one imagine to-day the present distinguished editor of the *Lancet* publishing such a report as that written by the man Lambert? It is quite clear that Lambert had a grievance against Bransby Cooper, and that the presence, not only of himself, but of his friends on that occasion was not fortuitous, and that they were determined to take an opportunity some time of damaging Bransby Cooper's reputation. Can one conceive in the present day a practitioner from the Walworth Road pushing into the Post-mortem Room at Guy's, asking to see the specimens, handling them himself and demonstrating them to the students, with the sole aim of accusing a member of the surgical Staff of incompetence? Is it conceivable that in these days a surgeon of the eminence in his profession of Sir Astley Cooper should go into the witness box and commit the vulgarity and breach of professional confidence of talking publicly about and naming patients of his in the legal profession and giving details of their complaints and of the operations which he had performed upon them?

There is now no ground for accusing the Governors of nepotism in making appointments upon the Hospital Staff. In making these appointments the Governors nowadays act upon the recommendation of the Medical Staff of the Hospital; and those of us upon whom is placed by the Governors the responsibility of making recommendations to them for appointments on the Staff know that it is a handicap rather than an advantage to a candidate to have a father or a relative upon the Staff of the Hospital.

No publisher would be found in these days who would publish caricatures of the scurrility of these which you have before you this evening, and it is pleasant to reflect upon the cordial relations which now exist between the hospitals and the medical press, whose aim is to help the hospitals and the medical profession, rather than to hold them up to the scandal of the public. Wakley was a reformer, and, without doubt, in the early days of the *Lancet* did a great public service, but, like many reformers, he did at times allow his enthusiasm to get the better of his judgment and of his taste.

The Need for Research

The Presidential Address to the Dental Society by F. S. Warner, Esq.

GENTLEMEN,—May I take this, my first opportunity of expressing to you all my deep appreciation of the great honour you have conferred upon me in electing me your President for the coming session. This Society has, in past years, enjoyed the guidance of presidents far more able than myself, but it will nevertheless be our endeavour to maintain a standard which approaches as nearly as possible that set up by my predecessors. We are fortunate in securing a secretary and a committee who are noted for their energy and perseverance, and, with their and your help, I am sure we may look forward to meetings noted for the contributions to science which they produce, and for the eloquence of the discussions which are provoked.

May I also, on behalf of this Society, extend a most hearty welcome to the many new members who are now attending their first meeting? They may rest assured of the great pleasure it gives us to have them with us—it is our hope that they will contribute to the affairs of the Society and that we may have the advantage of any words of wisdom or of criticism which they may wish to offer from time to time.

Any sense of elation which I may have experienced at being elected to my position this evening was destined to be short-lived, for your hon. secretary, being a man of foresight, approached me with the news that I must prepare an inaugural address for our first meeting. On this particular occasion, it is not customary to allow any subsequent discussion, and I find I am, therefore, to be spared the wave of criticism to which I realise I should be subjected from the more eloquent of our debaters. Realising as I do the great injustice of insisting upon silence when the mass of the meeting is in disagreement with my remarks, I have endeavoured to collect a few remarks with which, I hope, the majority of those present this evening may not be in entire disagreement; should they be so, I can merely crave their indulgence and trust that they may be compensated upon some future occasion.

For my address, which I have purposely made as short as possible this evening, I have chosen the title, "The Need for Research."

Realising as I do that the cynic amongst us would assure us that our profession has precisely no future, and, in fact, very little past, I find myself unwilling to adopt such a sweeping and pessimistic outlook. Looking back into history, one cannot fail to be impressed by the fact that every country, every trade and every profession enjoys an era of advance and prosperity. The duration of such a phase depends upon many diverse influences, but it is inevitably followed by a quiescent period, during which ground already gained is not by any means lost, but yet further advances are not made. I would venture humbly to suggest that we are, at the moment, passing through one of the latter phases. Looking in retrospect at the last 50 years of dental surgery, one cannot fail to realise and be grateful for the way in which our predecessors have advanced our profession from the methods of barbarism to the fine art which it is to-day.

During this time we have seen sepsis, antisepsis, and now asepsis. I wonder how many here this evening have ever seen what was at one time a familiar article—the carbolic spray. One of our dental colleagues conceived the idea of local anæsthesia. To-day we think nothing of it, yet imagine the consternation caused when it was found many years ago that dental surgery could be made painless. Now we use it in the routine of our daily practice—we can introduce it by means of specialised apparatus into positions at one time considered to be quite out of reach. We enjoy the use of radiology in dentistry to make our work simple and more certain; we must never overlook these advances or cease to be grateful for them. But, gentlemen, are we in our turn carrying on the good work? This is a most terrible doubt. I appreciate, of course, that when a certain stage of proficiency and efficiency has been reached progress must inevitably be slower and less easy to attain. This would be an easy explanation with which to appease our consciences, yet I cannot bring myself to believe that this can be the sole explanation of the phase, quite lacking in advancement, through which we are passing to-day.

There have been handed down to us methods of restoring the ravages of dental decay; all of you here this evening are capable of producing large and complicated restorations in gold and porcelain. If needs be, you will remove any number of teeth completely and painlessly; you will perform the operation of apisectomy or even of alveolectomy with unusual skill and dexterity. You will take a perfect impression and from it produce a denture looking much better than, and functioning almost as well as, teeth attached to the jaws by their periodontal membrane. Of this I have no doubt whatsoever, for we have instruction

from those who have spent the best years of their lives in perfecting the techniques of these operations. But is dental surgery no more than this? Is this really the be-all and the end-all of the profession? As it is practised to-day I am obliged, with some feeling of reluctance, to think that it is. But, gentlemen, what I wish to impress upon you all is the fact that there is much, much more in it than this. We have deluded the public with such success and for so many years into believing that we are doing the very best for them that there is becoming a danger of believing it ourselves. To avoid this we must check ourselves before it becomes too late.

Scientific training and understanding forms the bed-rock of the medical and the dental professions. That we lack such training, every one of us, is beyond all doubt. We must overcome the idea that dental surgery consists of little other than the filling and the extraction of teeth. Before the passing of the Dentists' Act of 1921, qualification and even some sort of education were not considered as an essential to practice. The eleven years which have elapsed have seen drastic changes. I notice with satisfaction that the dental curriculum is to be lengthened and to be made more comprehensive in nature. I am certain that those of you whom this will affect need regard this with no feelings of dismay.

We have all, in turn, regarded the Sciences as subjects to be disposed of as early as possible in our examination careers. There have been occasions in the lives of all of us when we have managed to delude the members of the examining board that we understood the principles of osmosis, surface tension and the like. This has been to us at the time a matter of some pride, for examiners are not, as a rule, men who can easily be deceived. Yet I do think, on looking back, that this has been a mistake—a mistake for which we alone suffer. As a consequence, we have been granted licences to practise while having few ideas of the workings of the human body in health and in disease. We are liable to overlook the fact that the mouth is merely a small yet very important part of the body as a whole. We must understand the workings of the body *in toto* and of the mouth *per se*, for they are more closely connected than we have realised.

What we lack is a fundamental knowledge of chemistry, physics and physiology—not merely a text-book knowledge, for that will not carry us far, but one gained by experience in dealing with health and disease. Having acquired this, we shall have some chance of discovering the ætiology of the various diseases with which we are confronted in the daily practice of our profession. Prophylactic treatment, then, is only one stage further advanced, and it is at this that we must aim. We already know the operative treatment—drastic and unpleasant. So you will realise that more and more research is necessary in order to acquire further knowledge. For this money and adequate facilities are essential; at present, broadly speaking, we have neither. Looking at the accounts presented by the Dental Board for last year, I note with dismay that only a small fraction of its expenditure was on the advancement of the science of dental surgery. It made grants to individual workers in various parts of the country, but few of them were striving to seek the causes of dental diseases—they were evolving merely complicated forms of treatment. This is starting at the wrong end, as I think.

During the last few years the conditions of acidosis and alkalosis have been put before us as the causes of most dental diseases and abnormalities. Time alone will show how correct are these ideas; personally, I think they are striking more closely at the roots of disease than we are, at present, willing to believe. Such ideas are, unfortunately, entirely theoretical, and lack any form of scientific evidence in support. Experiments carried out with specimens in the laboratory are of value, though the test tube has led us astray on many occasions. What we must have is human material available upon whom we can carry out our analyses and observations. In our own hospital we have recently made the first small step in this direction, namely, the securing of dental beds in the general wards. Their number is, of course, quite inadequate, and they are constantly occupied by patients about to suffer surgical interference. I look forward to the time when we shall have many more beds at our disposal, a certain proportion of which are occupied solely by patients under investigation. It will then be necessary to have a dental research unit attached to the hospital, controlled by a director of scientific and dental standing, with whom would work a number of assistants. All this costs money, for adequate remuneration is necessary if the required type of person is to be attracted.

This is an unpleasant stumbling-block. At Guy's we have, as yet, been overlooked by the philanthropist when he is arranging the disbursement of money at his decease, and, in any case, the public as a whole is very short-sighted and unappreciative of the fact that money is so vitally required for dental research. However, the time will inevitably come when a financial windfall will descend upon us, until which time we must strive to carry on as well as we can under the present impossible conditions. Nevertheless, even in your student days, when keenness is the keynote of

success, you are all capable of making observations which are of value. When you see anything with which you are unfamiliar, let it be the subject of a little private investigation of your own. You will find many who are only too anxious to give help, advice and encouragement; bring the matter before your colleagues at meetings of this Society, and even should you fail to discover anything new, you will have contributed your small part in attempting to foster the spirit of investigation which is so essential to-day.

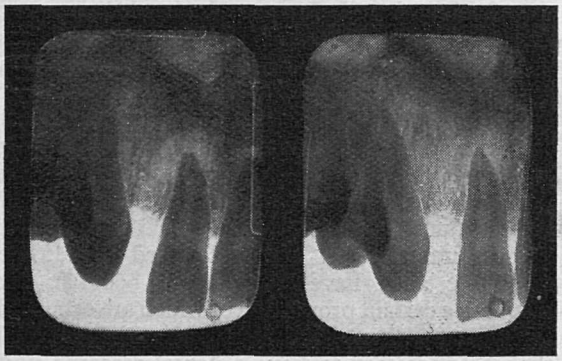
I thank you, gentlemen, for your very kind and patient hearing.

The President then called on Mr. K. E. Lawrence to read his casual communication.

RESIDUAL INFECTION

This case illustrates how a normal tooth was involved in the spreading of residual infection from the socket of a neighbouring tooth previously extracted.

D. M., aged 32, attended for conservative treatment, during which time a sinus developed over the upper left central. Tests, by heat and



cold, suggested that the tooth was not vital. The patient gave a history of having had the upper left lateral extracted at some previous date, the exact time could not be ascertained, but was at least five years before.

From the history given the case was X-rayed owing to the possibility of a septic root having been left. However, the X-ray showed no evidence of a root being present, but that the lateral socket still remained as a rarified area. At the apex of the central a large area of rarifying osteitis was shown in connection with the lateral area. The absorbed area suggested, by its shape, that the infection had spread from the lateral to the central; this suggestion was strengthened by the fact that the central was a sound non-carious tooth.

The patient was advised of the condition and consented to the removal of the tooth and infected bone.

The treatment was carried out under local anæsthesia; sub-mucous injections were given and the central removed in the usual way. The root had an unhealthy appearance and emitted a foul

odour. An incision was made along the alveolar border from the central socket to just mesial of the canine. Vertical incisions were made distal to the frenum and mesial to the canine; the gum and periostium were then elevated.

The bone was found to be soft and necrotic and much could be curetted away. There was definite evidence of the connection between the lateral area and the central socket. The remaining septum was trimmed away, together with the outer alveolar plate. When scraping distally, care was taken owing to the danger of infecting the canine. The gum-flap was then replaced and free drainage allowed by loose stitches.

After-treatment consisted of daily atomising with hydrogen peroxide and the stitches were removed after five days. A denture was fitted after 14 days.

The patient was seen eight months later, and clinically the condition appeared normal and healthy. X-rays were again taken and showed that, while there had been regeneration of bone in general, superficially there was evidence of slight residual infection.

It is interesting to note that this patient suffers from frequent colds and minor affections of the throat and has, in fact, a chronic infection of the tonsil. So long as the tonsil is acting as a focus of infection the dental condition will not, in all probability, completely clear up.

The members present, some 75 in number, expressed their appreciation of the paper and casual communication in the usual manner.

The Nurses' Debating Society

A WELL-ATTENDED meeting of the Nurses' Debating Society took place in the Nurses' Home on Tuesday, October 11th, at which Matron kindly officiated as Chairman. The subject under discussion was, "That Prohibition would be desirable for this country."

The speeches were interesting and lively, but the arguments raised by the supporters of prohibition savoured rather strongly of tracts and Sunday schools and seemed to lack conviction. "Guinness is good for you" appeared to be the general sentiment, so that the after-discussion proved very one-sided in spite of the manful efforts of the Chairman to raise supporters for the proposition.

The first speech was made by Nurse Nockolds in favour of prohibition. She stated that alcohol had been proved the least effective of all foodstuffs and that the craving for it was not natural, but acquired. She then launched into such a detailed account of the effects of alcohol on the human body that more than one Sister Tutor present sat up and took fresh heart! Murders, motor accidents and the sordid lives of many of the children of the poor were a few of the evils attributed to the drink problem, and the speaker ended by suggesting that we used our barley for bread-making, turned the public houses into respectable cafés, and thus made England a healthier and happier country.

Her motion was supported by Nurse Kingswell, who declared that alcohol was the chief cause of crime, lunacy and pauperism, and was "destructive to the order and welfare of society"; that those who engaged in vigorous pursuits such as rowing, horse-riding, etc., were nearly always found to be total abstainers. Further amusement was caused by her belief that infant mortality in this country was, to a great extent, due to overlaying by drunken mothers! England and America, she stated, could not be compared in the matter of prohibition, as America was a nation of "half-castes, cosmopolitans and foreigners"—very different from our law-abiding English people.

The opposition was to have been led by Nurse Twysden, but, as illness unfortunately prevented her attendance, her speech was read by Nurse Marriott. In it she produced evidence to show that even in primitive times man had made use of some plant which would stimulate and produce intoxication. She drew vivid pictures of the havoc caused by prohibition in America, and urged that temperance, not teetotalism, should be our object. England, she said, had never been a drug-taking nation; drunkenness in this country was on the decrease and prohibition would only succeed in rousing a sense of injustice.

Her speech concluded with a reference to the teachings of St. Paul. "Take a little wine for your stomach's sake and your often infirmities."

Nurse Jenkins then rose to add her support to the opposition. She assured the company that alcohol had no bearing on crime. "Criminals," she stated, "were nearly always teetotalers and teetotalers criminal." It would be folly to interfere with the freedom of the Englishman. History showed how such a course had always been attended with disaster. In America, prohibition had turned a law-abiding people into criminals and a great country had been made a by-word by a few fanatics. Alcohol, she concluded, far from being a source of danger to the community, was a "stimulating assistant to social intercourse."

Miss McKenzie, a visitor from Ontario, told the meeting that since prohibition had started in America her province had grown rich by selling illicit alcohol to that country. She prophesied that if England were to adopt prohibition, France would profit in the same way.

After a little more discussion, votes were taken, and the motion defeated unanimously.

Bright Intervals—V

THE Night Nurse, ever on the go,
Is always trotting to and fro—
With here a tonic, there a drink,
And thermos in a pot of pink.
To those who cannot sleep she brings
A very host of varied things;
If you can't sleep when feeling ill—
Well, after these you surely will.
At times it is a glass of goo
That brings oblivion to you;
At other times you get your quota
Tucked inside a tiny boater;
And if you are at all in pain
She hypoderms you half a grain.
Throughout the night she strives to keep
Her painful patients sound asleep.
When dawn arrives she's sure to be
All ready with your cup of tea.
She feels your pulse, inspects the tongue,
And tells you that the morning's young;
She sees your breakfast well prepared,
Ensuring that the bacon's aired;
Then asks you all if you've "been good"
(Inverted commas understood!).

"SINISTER."

The Debating Society

THE Debating Society opened its winter session on October 13th, when a large conclave discussed the motion that "This House is in Favour of the Cult of the Nude."

Mr. A. R. Thompson, proposing the motion, began by describing, with graphic detail, the anatomy of the Chalk Man at Cerne Abbas, on the Dorset Downs. He proceeded to discuss the nude from the point of view of clothes, which, he said, served the purpose of protection, concealment of bodily defects and adornment. He contended that the body lost half of its power of expression by being covered, and described the corporeal conversational powers of certain native tribes. He invited us to imagine the speed and grace of a game of rugby football played by nude men, who would be compelled to run fast to keep warm.

He did not advocate that we should all go about naked—if that were done we should have to hibernate each year—but asked us to treat the matter with common sense. He did not believe in the æsthetic side of clothing, but considered that exposure of the body would induce greater pride and interest in manual labour and reduce, to a large extent, the burden placed upon the modern world by slavery to the machine.

Mr. T. B. Layton, for the opposition, attacked the problem from the æsthetic point of view. He confessed to having seen scarcely any naked men, and only a few naked women from a back seat at the Moulin Rouge. He had, therefore, to rely on the experience of others expressed in works of art, and decided, on this evidence, that bodies were hideous. The modern school depicted bodies as they are and made them appear very ugly, while the old masters idealised their subjects and made them appear more beautiful than they really were. He said that the only parts of the body which showed any beauty were those which were exposed, so the rest had better be kept covered up. The body showed the effects of evil-doing in its configuration and development; how many of us would dare to expose those records of sin after the age of thirty?

Mr. D. H. Mackay, seconding the proposal, said that nudity would make us live better lives in order to keep our bodies beautiful. If our bodies were not beautiful shame would make us take steps to improve them. The cult of the nude would be beneficial to the general health of the race.

Mr. W. P. Stamm, the seconder for the opposition, declared that his opponents had evaded the question, and must discard clothes completely or not at all. He said that nudism, like vegetarianism and many other 'isms, was due to the workings of unbalanced minds. The cult offered to the eccentric all he desired, *i.e.*, to be different from others, and it should be ignored and left to die a natural death. The cult did not show a return to Nature; Nature is progressive, and the first instinct of primitive man is to clothe himself. If we were to stick closely to Nature we should go on putting on more and more clothes. He urged strongly that we should put a stop to the movement and "prevent the foundations of civilisation from being shattered."

After a short interval for the digestion of these views and a cup of coffee, the motion was opened for debate, whereupon Mr. Donald rose to argue that the nudists practised their cult in special colonies and did not parade themselves before the public eye. He made a plea for the gradual discarding of clothing, and cited as an argument the corns he had that day seen at Orthopædic Out-patients.

Mr. Singer then announced to a sympathetic but acquiescent house that he had an awful face, but a lovely body. He had tried to improve his face by surgery, with no more result than a beautiful thoracic scar, which he was forbidden to show us.

Mr. Grocott had a nebulous recollection of a Physiological Society dinner at which Mr. Layton had spoken views contradictory to those he had now advanced, but made no further contribution to the discussion.

Mr. Clogg announced that he belonged to a sun-bathing society and had benefited greatly from the solar rays. He urged that we should exercise with the minimum of clothing at selected periods, but should not discard clothing altogether.

Mr. Dunstan felt it incumbent upon him, for reasons not divulged to the house, to quote the classics, and thereupon declaimed in his own words extracts from Anatole France and Carlyle, touching upon the harmful effects of clothing. He confessed to a Narcissistic pride in his own bodily grace.

Mr. Hodgkin, having smouldered long enough, now broke out with no little heat to avow that bodily defects were the cause of inferiority feelings, and must therefore be brought to light to remove the inferiority. He said that what Mr. Layton really felt but had not dared to say was that nudism "would not be nice." He deplored the sense of shame that was grafted on to us from infancy,

which was the cause of our hiding our bodies away in clothes. He personally could not imagine that the stomachs of the Borough ladies were uglier than their stomachers. New ideas were essential if we were to keep vital, and surely anything like nudism, which aroused enthusiasm, was for that very reason worthy of encouragement.

Mr. Grace pointed out that there was a fallacy in the assumption that well-being arose from the absence of clothes. The benefit derived from a holiday came as much from freedom from worry as from circumstances permitting the practice of nudism.

Mr. Layton then summed up for the opposition. He gave little heed to Anatole France, who was a dirty old man comparable to Rabelais, and declared that he would never do physical jerks clothed or unclothed. In answer to a previous question, he defined the cult of the nude as absolute nudism, and would consider no half measures. Clothes were necessary for the purposes of decency and morals, the preservation of health and æsthetic purposes. With characteristic modesty he announced that Mr. Hodgkin had gained his eloquence from listening to him for three months.

Beyond pointing out that in any case Mr. Hodgkin could scarcely avoid listening to Mr. Layton, Mr. Thompson made very little addition to the views expressed in his opening speech, and it is to be feared regarded the general trend of speech-making during the evening as too favourable an augury of success. He had, however, not reckoned with the silent hosts of pro-clothiers, who defeated the motion by 59 votes to 38. D. H. I.

Correspondence

House Officers and Christmas

To the Editor of the GAZETTE

SIR,—I have just been imagining Christmas in the College if your correspondent's suggestion of Christmas reform were adopted. Four or five unfortunate Take-In Officers would spend a miserable, lonely and uneventful day, while the "Niggers" would lose their attraction if outside "talent" were encouraged. The Residents' Play needs six weeks' rehearsing, and, as the University Examinations for which many residents enter do not commence until the middle of December, rehearsals cannot begin until after Christmas.

I am sure that the majority of the Residents are satisfied with the present conditions, and I hope that the oncoming Residents, whom the matter directly concerns, will consider it seriously and arrive at an early decision in what is, after all, their own affair,

Yours, etc.,

DAVID ERSKINE.

Guy's Hospital,
S.E.1.

To the Editor of the GAZETTE

SIR,—I feel that in his eagerness to lighten the burden of the winter house officer Dr. Conybeare has overlooked the spirit which, to my mind, is essential to the success of the "Niggers" (though, indeed, he does refer to early morning C_2H_5OH). The pleasure which the patients derive from watching their own particular doctor sing in his own ward is far greater than if the concert party were composed merely of students, and should be an adequate compensation for the house officer's arduous rehearsals. Whether it is worth while is, surely, for him to decide, for there can be no force to compel one to take part in the "Niggers"; only two years ago there were some who declined the privilege. Most house officers, I am sure, enjoy both the performance itself and the necessary rehearsals.

Furthermore, there are few, I feel, who would relish rehearsing in grim earnestness for the "Play" during Christmas week, and this would be essential if the play were to be held in the first week in January.

Yours, etc.,

P. M. F. BISHOP.

Physiological Laboratory,
Guy's Hospital, S.E.1.

To the Editor of the GAZETTE

SIR,—Who is this J. J. Conybeare that darkeneth counsel by words without knowledge? What should he know of Christmas that only his golf club knows? The Residents themselves have made our traditions at Christmas, and it is for them and them alone to continue or to modify the doings on that day. Where is the tyranny, and what harm the modest bacchanalia?

Fiat dissonantia, ruat coelum. If "J. J. C." will join the chorus this Christmas he will achieve his object. It will be the last Christmas "Niggers"! The heavens will fall.

"NEC DIONYSIUS NEC DIONYSUS."

Guy's Hospital, S.E.1.

To the Editor of the GAZETTE

SIR,—It is with great pleasure that I see Dr. Conybeare joining the ranks of the Anti-Christmas League, be it only as a private person and not as Warden of the College. Christmas always seems to be marred as an entertainment by the alcoholic accompaniment, while as a drinking bout it is ruined by the stairs. The old-world customs seem to be in some part lacking; largesse is expected, open house is kept, but courtesy is not mutual, nor does charity begin at home. If revel we must, why not a true Saturnalia, and not a wishy-washy wassail forced upon half-protesting Residents by tradition?

Yours, etc.,

SAMSON GUBB.

Guy's Hospital, S.E.1.

To the Editor of the GAZETTE

SIR,—Many Guy's men must have read with regret Dr. Conybeare's letter concerning the "Niggers," published in the recent issue of the *Gazette*.

Every year, with the approach of Christmas, there are certain Residents who endeavour to undermine the enthusiasm of those who feel that the "Niggers" are a very important part of Christmas at Guy's. Their objections are usually founded upon a dislike of making themselves conspicuous for other people's amusement. If this is to be classed by Dr. Conybeare as "mental trauma," then it is amazing that every Resident who has passed through "the tyranny of Christmas at Guy's" should have recovered so completely by Boxing Day.

There are many objections to the "Niggers" being run by volunteers from all over the hospital. It would be difficult to arrange practices to suit everyone, and such practices could never have the same friendly atmosphere which is so characteristic of a Residents' practice. The patients and others in the wards would not have the satisfaction of hearing their own "Doctor" sing, and the Residents themselves would have lost something which they could afterwards have looked back upon, not with regret, but with the feeling that they had helped with what is undoubtedly an essential feature of Christmas Day at Guy's.

It is just about this time of year that the same old objections are being raised, and it is to be hoped that Dr. Conybeare's letter will not discourage the present Residents from organising the "Niggers" on the same lines as they have been for many years.

Yours, etc.,

D. W. JAMES.

Guy's Hospital,
S.E.1.

Rowing Club and Railway Tickets

To the Editor of the GAZETTE

SIR,—As a very impecunious member of the Rowing Club I would like to suggest that return tickets to Putney, similar to tickets issued in the College to Honor Oak Park and Motspur Park, be available for members of the club.

Yours, etc.,

R. G. KETT.

Guy's Hospital,
S.E.1.

Sport

Rugby

Guy's v. Old Blues

A DING-DONG struggle was seen at Honor Oak Park on Saturday, October 8th, when the Old Blues were defeated by 2 placed goals, a dropped goal, 2 penalty goals and 2 tries (26 points) to 2 goals, a dropped goal and 2 tries (20 points).

The continuous rain during the morning frightened many spectators away, but those who turned up were rewarded with a fine exhibition of open football. Luckily the weather cleared before the match commenced, and the ground was again in perfect condition. Windsor Lewis made his first appearance of the season at right centre, but after the interval he resumed his old berth at outside half. The change proved very effective, and every time the backs received the ball they were on the offensive. After the display in this match there is no doubt that when the Hospital is at full strength they will be a formidable combination.

The forwards, as they have appeared in the last few matches, are really good, and it will be difficult for the selectors to find places for all those who represented the Hospital last year. The pack have been using the 3—4—1 formation very effectively, but they are still a long way from perfect in the line-out. In the loose they were certainly better together and carried out their

forward rushes collectively and not as individuals. W. J. R. Morgan was not so reliable as in previous games, but the greasy ball and slippery state of the ground made it difficult to do justice to oneself.

The surprise of the match was the performance of V. H. Bowles at scrum-half, who, after a shaky start, settled down and gave a sound and intelligent exhibition. Alexander also played a brilliant game in which he registered half the points obtained for Guy's.

Guy's attacked from the start, but the Old Blues retaliated and W. J. R. Morgan fumbled a long punt and was caught in possession; from the scrimmage which followed, the ball came to Bartram, who steadied himself and dropped a perfect goal. Ashdown saved a certain try soon after, when he raced across to the opposite wing and threw Jennings into touch. Giesen broke away on his own and passed to W. H. Lewis, who was tackled within five yards of the line. The same pair again cut through the centre after Lewis had found touch with a clever kick. The Old Blues were penalised for off-side and Alexander kicked a perfect goal. This was quickly followed by a solo effort by Giesen, but his punt ahead was fielded by the full-back. A breakaway and a punt forward by Lewis gave Ashdown an opportunity to show his speed, but the Old Blues touched down just in time.

The visitors then sprung a surprise when they followed up a long punt and Bateman registered an unconverted try. Soon after the Old Boys were penalised for off-side, and again Alexander kicked a good goal from near the touch-line.

The exchanges were now very fast, and in turn both Pearce and Alexander came near with penalty kicks. The latter started a fine three-quarter movement for Guy's, and a sharp exchange of passing with Windsor Lewis finally ended when Alexander crossed near the posts for a try, which he converted.

After the interval Guy's attacked immediately, and Ashdown actually crossed the line, but was called back owing to a forward pass; however, the Hospital maintained the pressure and the ball came back to Windsor Lewis, who dropped a perfect goal.

A sudden change came over the game when the visitors caught the Guy's defence napping and scored two quick tries through Jones and Hobden, the former being converted by T. N. Pearce. Guy's were now two points in arrears, and there was plenty of excitement before the Hospital scored again. After pressing on the line, the ball came out to Alexander, who passed to Giesen; the latter went through with a swerving run and scored behind the posts, but Alexander left his kick too late and missed the goal points.

Lewis, Alexander and Giesen took part in another combined movement, which culminated in Giesen scoring another try behind the posts, which Alexander converted. Guy's were now well on top, and the backs were making full use of the many chances that came their way. The Hospital elected to have scrums instead of a line-out, and they obtained the ball regularly.

Near the end Giesen found touch in the corner with a beautiful kick, and soon after Lewis prepared Ashdown for a cross-kick, which enabled him to cross in the corner for a try, and in the last minute of the game the Old Blues crowned a great forward rush with a try registered by Mathias—neither of these tries being converted.

Teams.—W. J. R. C. Morgan; D. E. Ashdown, Windsor H. Lewis, P. C. Alexander, C. G. Wright; J. E. Giesen, V. H. Bowles; M. R. Kark, J. P. O'Shea, A. G. Heberlein, I. G. Robin, D. M. Leeming, T. Morgan (Capt.), C. S. Darke, A. R. Clarke.

Guy's v. London Irish

PLAYING at home on Saturday, October 15th, Guy's, after a hard struggle, defeated the London Irish by a placed goal and 2 tries (11 points) to a placed goal and a try (8 points).

The game started a quarter of an hour late owing to the visitors turning up short—luckily Hogbin was on the ground and turned out to complete the Irish team.

Following the trial game held in mid-week, Guy's gave an opportunity to two freshmen, K. A. Stanyon, a scrum half who captained the Leicestershire Public Schools last season, and G. J. van der Merwe, a second-row forward from the University of Cape Town.

With M. R. Kark indisposed with influenza, R. J. Drummond was included in the front row, and I. K. Thomas made his appearance on the left wing of the three-quarter line. Neither wing positions have been filled satisfactorily this season, and the experiment of playing Thomas outside proved a great success.

Ashdown, although fast, has not so far reproduced the form which appeared to be so promising last year, but Stanyon, with a little more experience of first-class football, should make an ideal partner for Windsor Lewis.

Thomas soon came into prominence and he made a clever mark when faced by the Irish forwards, who were closely following a punt ahead. Soon after, Stanyon set the three's going, but Hogbin saved and led the visitors in a fine forward rush, but over-anxiousness spoilt their effort and Morgan sent them back as the result of a fine penalty kick awarded for offside. Stanyon again set his backs going, and Alexander created a fine

opening for Ashdown, but the latter missed the pass and lost a certain try. Giesen and Thomas both came near to scoring, and the former found touch in the corner as the result of another good penalty kick.

Guy's were now attacking continuously, but a sound defence prevented them from pressing home their advantage, but a little later Lewis created a splendid opening for Alexander, who cut through and sent in Ashdown for an unconverted try.

The Hospital were now playing well, and Lewis caught the Irish defence out of position when he cross-kicked in their 25, but they just managed to touch down. Giesen broke through immediately afterwards and should have scored, but hesitated when looking for support and missed his chance.

A good effort by Thomas, who resisted several tackles before passing to Drummond, looked dangerous, but the Irish carried the ball over the line and a five-yards' scrum followed. Then the visitors exerted themselves, and the forwards carried out a magnificent rush, keeping the ball well under control; they carried the movement across the Guy's line for Anderson to touch down behind the posts, but the kick at goal failed.

Before the interval, Guy's made a determined effort to obtain the lead, and nobody worked harder than C. S. Darke and T. Morgan. The former was about the best forward on the field—always in the right place and ever ready to cover up a mistake or lend a hand in any attack.

The second half opened sensationally, as the Hospital registered eight points in the first two or three minutes, and it looked as if the visitors would be swept off their feet. First Windsor Lewis raced through the centre before passing to Giesen; the latter sent in Alexander, who crossed for another unconverted try. Then Thomas scored the most spectacular try of the match. Receiving the ball on the left wing about 30 yards out, he bullocked his way past several defenders and, after a clever corkscrew run, scored behind the posts for Alexander to register the additional goal points.

However, the Irish woke up and immediately set about reducing their deficit; they bustled the Hospital forwards off the ball and pressed for several minutes on the Guy's line. They nearly scored on more than one occasion, and it was not until Windsor Lewis relieved with a kick to mid-field that the Hospital line was out of danger.

Following a short throw-in, for which Guy's were quite unprepared, the Irish managed to score another try through Chapman, which Hogbin converted.

With such a narrow margin of points separating the two sides there was now plenty of excitement. The Irishmen did their utmost to draw level, and it required clever tactics on the Guy's side to keep them out.

After the visitors had made their effort, Guy's took up the initiative, and during the last ten minutes pressed continuously. First Giesen reached the corner flag before he was brought down, and then a splendid passing movement between the backs ended when Alexander gave a forward pass to Giesen. Further attempts to cross were made by Giesen and Thomas; the former knocked down the corner flag whilst in the act of crossing, and the latter was within five yards of the posts when he was brought down.

Alexander played a splendid game and had a fine understanding with Windsor Lewis. Clegg appeared a trifle slow at full-back, but otherwise played a sound game.

Team.—W. R. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, I. K. Thomas; Windsor H. Lewis, K. A. Stanyon; A. G. Heberlein, J. P. O'Shea, R. J. Drummond, I. G. Robin, G. J. van der Merwe, T. Morgan, C. S. Darke, A. R. Clarke.

Guy's v. Harlequins

THE Harlequins visited Honor Oak Park on Saturday, October 22nd, and successfully defended their unbeaten record this season by winning by a dropped goal and a try (7 points) to a penalty goal and a try (6 points).

The fascinating play of the Quin's is always a great attraction, and therefore it occasioned no surprise when a large number of followers of both sides turned up to see what will be remembered as one of the most exciting contests seen on the Guy's ground. Although our visitors lacked the services of their captain and wing three-quarter Gibbs, they fielded a powerful side, which, with this one exception, had defeated Cambridge University the previous week.

On the other hand, Guy's made several important changes which, on the run of the game, were fully justified. With Hogbin back at the Hospital and Kark fit again, alterations were made in the pack which meant the exclusion of Leeming and Heberlein, both having played well in previous matches. In the three-quarter line Thomas was retained on the left wing and Lindsay, mainly because of his defensive abilities, was included on the right.

The weather was uncanny, inasmuch as during the first half Guy's had to face a blinding rain-storm and, after the interval, the Quin's had to contend with the glaring sun in their eyes. The laurels in this game undoubtedly go to the Hospital pack, who played their best this season. In the set scrums and in the loose they were excellent,

and continually harassed their opponents in their endeavours to dribble through or open up for their backs. In fact, they anticipated every movement contemplated by the opposing pack to such an extent that during the closing minutes the visitors were reduced to a state of impotence and were compelled to use the best defence possible to keep out the onslaughts of the Guy's forwards.

T. Morgan, the captain, led his forwards magnificently and has never played a better game; he was well supported by O'Shea and Kark in the front rank and A. R. Clarke in the rear. The greasy ball made it difficult for the backs, but, although mistakes were frequent, they got through some clever handling and passing movements.

Stanyon confirmed the favourable impression he created in the match previously, and will, with a little more experience with his partner, make his position secure. He gave a very sound exhibition, but he rather overdid the blind-side movement—so much so, that Dean or one of the back-row forwards was ready for him. Furthermore, he threw his passes from the base of the scrum so far back that his partner had to take them standing still instead of on the run. Clegg at full-back compared favourably with S. A. Block, who gave a capital exhibition; the latter was faultless with his kicking and his positioning was perfect.

During the first half it was a battle royal between the forwards, each pack in turn trying to secure the ascendancy, but with every man marking each other, progress was very difficult, and it was only by clever kicking to touch that the match was waged from one end of the field to the other. Guy's came near to scoring on two or three occasions, and in fact did cross the line once, but were called back for some technical infringement. After doing the major portion of the attacking the Hospital started a passing movement in the Quin's 25, but the visitors intercepted and Cole broke through. When faced by the full-back he kicked over the line, and Hodge raced up to secure the touch-down for a try, which was not converted. This came as a bit of a shock for Guy's, who, on the run of the play, did not deserve to be behind. They immediately set to work to draw level and, although they launched several attacks, they were unable to pierce a solid defence in which Block, at full-back, was supreme.

Early in the second half the Hospital received a further setback when the visitors again took them by surprise. After defending their line, the Harlequins' forwards came away in magnificent fashion and, carrying everything before them, transferred the scene of operations to within five yards of the left corner flag. From the line-out the ball was whipped out smartly to Chapman, who was standing in front of the posts, and the latter without hesitation dropped a good goal. This was all against the play and the Hospital must be considered unlucky, although every credit is due to the visitors for taking advantage of their opportunities.

However, Guy's kept persevering, and not only did they prevent any attacks from becoming dangerous, but they assumed the initiative soon after. Following two or three scrums near the line, Guy's were awarded a penalty for offside, and Hogbin raised the hopes of the supporters by kicking a splendid goal from near the touch-line. Encouraged by this success and knowing that they had a chance to succeed, Guy's redoubled their efforts and, with ten minutes to go, they were on the offensive in the Quin's 25 when the ball came cut to Windsor Lewis, who was unmarked in front of the posts; although he steadied himself, he sliced his kick, and a good opportunity of drawing level went astray.

A minute or so later, Guy's pressed again and Lewis, accepting a pass from Stanyon, found an opening for Alexander, who went full speed for the line and, after drawing the defence, sent Lindsey in for a try in the corner. The kick at goal practically decided the issue of the match and was the subject of much controversy. The referee ordered a "no charge," but he would not accede to a request by Hogbin to allow the ball to be moved before he took his kick, and, furthermore, he allowed three or four of the forwards to stand in front of the ball. As it was, his kick at goal only missed by inches, and the visitors retired winners by the margin of one point.

It was one of the best matches seen at the ground for some time—full of excitement, with the issue in doubt up to the final whistle. The game was fought out in a splendid spirit, with each side all out from beginning to end.

Team.—W. B. Clegg; I. K. Thomas, J. E. Giesen, P. C. Alexander, W. J. Lindsey; Windsor H. Lewis, K. A. Stanyon; R. J. Drummond, J. P. O'Shea, R. A. P. Hogbin, I. G. Robin, T. Morgan (Capt.), C. S. Darke, A. R. Clarke. M. R. Kark.

Hockey

Guy's v. Kingston Grammar School

ON Wednesday, October 5th, Guy's drew with the Grammar School (3—3) at Kingston.

Throughout the game was fast and open. Guy's went hard from the start, and were rewarded early with a goal by Trethowan. The play continued with even exchanges, and the School forwards always looked dangerous when they got away, but Guy's increased their lead before Kingston scored, Wright scoring from a weak clearance.

At half-time the score was 2—1 in Guy's favour, and early in the second half Dryland scored a third goal. Guy's then definitely took things easy, with the result that the School scored twice in quick succession to level the scores. The third goal was scored by the School centre-forward, who took the ball from the half-way line to beat both the backs and the goalkeeper as he liked. Towards the end, Guy's attacked hard and had the School defence in their own circle, the forwards being very unlucky not to score.

Team.—E. A. Mayston; T. E. Mitchell, D. P. King; A. W. Turner, A. G. Richmond, H. B. Smith; C. A. Clarke (Capt.), W. Hamilton, L. W. Trethowan, J. W. Dryland, S. W. Wright.

Association

Guy's v. Old Aldenhamians

THIS match was played at Honor Oak Park on Saturday, October 15th, and resulted in a win for the Old Boys by 4 goals to 3.

The Old Boys started off with a rush and were very soon leading, a nice bout of passing ending by Morland netting from close range. The game was evenly contested after this reverse, both sides tackling quickly and soundly. Just before the interval Linett broke through the centre and put the Old Boys further ahead. The Hospital then rallied for the remainder of the first half and Colbert, moving in from the left wing, scored from a centre by Marshall.

The second half was faster and more robust than the first. Groom scored for the Hospital with a fast rising shot; this was quickly followed by Osborne, who added another goal with a very good shot from long range. The Old Boys then scored two more goals, chiefly through the efforts of their wing forwards, who were not held in check by our half-backs.

The Hospital were very unfortunate to lose, especially as the goalkeeper was hurt early in the second half and had to retire for a time.

As soon as the forwards combine better and shoot more often the team should settle down to a series of wins.

Team.—F. A. Rogers; R. Lawson, R. L. V. Henderson; J. Bromley, S. E. Osborne, R. C. Jackson; L. E. Marshall, D. Priestley, W. Groom, G. C. Sprigins, J. C. Colbert.

Hospital Information, etc.

Pass List

L.D.S., R.C.S. (Eng.).

September, 1932.

PART I.

Dental Mechanics.

E. A. Beach
R. A. Beck
C. M. Beales
H. Bradley Watson
J. M. Brown
T. E. Card
H. C. Davis
D. P. Fox
H. C. French
P. F. B. Gillett
D. A. Godfrey
R. J. G. Haytor Williams
R. L. V. Henderson
H. G. Hexter
W. B. Hubbard
W. C. Kendrick
E. L. Moll
E. Nelson
C. A. Reynolds
T. D. H. Ridsdale
S. Rosenberg
K. L. Scott
A. G. Smith
K. G. Swiss
H. C. A. Weighell
D. J. Wigginton
J. C. L. Wren

PART II.

Dental Metallurgy.

O. B. Brears
W. G. C. Dickson
G. R Down
F. C. Dutton
E. Dunstan
D. W. Friendship
J. C. Keay
W. F. Leuner
E. Nelson
R. F. Parfitt
J. F. Russell
E R. L. Shrimpton
J. F. A. Smyth
F. Stevens
D. W. Toulson
J. W. Turner
A. S. Woolstone

PART IIIA.

Anatomy and Physiology.

D. E. Ashdown
N. A. Blay
O. C. Jenkins
K. A. Keith
L. C. Bellsham Revell
E. B. Briault
C. E. Coltman
W. F. Cooper
J. L. Deuchar
H. C. French
P. Griffin
N. A. Hawkins
D. E. Holloway
W. S. Jackson
G. C. N. Kramer
J. N. W. Peatfield
P. V. Peatfield
H. P. L. Rhodes
A. G. Richmond
J. F. M. Sampson
N. A. Siggers
A. G. Smith
C. A. Styer
R. S. Wells

PART IIIB.

Dental Anatomy and Physiology.

L. J. Bailey
F. N. Bekenn
W. F. Collyer
J. N. G. Fensom
G. D. Fleetwood
K. E. J. Fletcher
A. Gorton
D. F. Malt
W. E. Morton
M. H. J. Simpson
J. G. Spiller
W. E. Waite
H. W. Westoby
R. W. E. Williams

Change of Address

L. E. James, L.D.S., R.C.S. (Eng.), The Poplars, 137, High Street South, Dunstable, Beds. *Dunstable* 190.

Marriage

JAMES—BLUNDELL.—On Saturday, 25th June, 1932, at Christ Church, East Sheen, by Rev. W. E. Gladston, L. Elwin James, L.D.S., R.C.S. (Eng.), only son of Mr. and Mrs. R. L James, late of East Sheen, to Jessie Eunice, youngest daughter of Mr. and Mrs. H. T. Blundell, of 164, St. Leonard's Road, East Sheen.

EDS. { E. S. M. McA.

GUY'S HOSPITAL GAZETTE

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PASSIM

WE were startled to see an article in the daily press some weeks ago to the effect that Guy's and several of the other leading London hospitals had decided not to compete in the Annual Inter-Hospital Rugger Competition this year.

Such an announcement has, naturally enough, resulted in many rumours, and many are the theories which have been propounded for such a statement.

Oddly enough, unless the editorial eye has been more than usually lacking in its comprehensive review of current literature, there has been neither confirmation nor denial of this statement, a fact which in itself is sufficient to provoke comment, and, as far as the general public is concerned, the matter remains as it did when that article was written.

Such a state of affairs seems to us eminently unsatisfactory, and we think that it is only fair to the many supporters of rugger in this hospital that some definite statement should be made—either a complete denial if it is false, or the reasons for such a revolutionary move if it is true.

THE amenities in the College being such as they are, we approach the question of lunch-time in the dining-room with some trepidation. There does, however, seem to be some possibility of solution of the present complaint without definite structural alterations. It would appear that certain members of the Hospital have difficulty in getting lunch in the short space of time they can spare from their duties.

One might think that the reason for this was not far to find, and that either the speed or the scarcity of the waitresses or the size of the room might be blamed. We believe, however, that such are not the only causes, and would suggest that the more potent reason is the fact that so many people linger unnecessarily long over their coffee and cigarette, or even cigarettes, thus depriving others of their seats.

We do, therefore, most urgently ask these offenders to occupy the dining-room at the most congested time of the day merely for the purpose of eating, thereby contributing to the comfort of their fellows.

IN his recent lecture to the Physical Society Mr. Eason dealt with an unusual episode in the history of Guy's so vividly that there must have been many of us who were only too glad to get the chance of reading it again in the last issue of the *Gazette*. Happily, at the meeting itself Mr. Eason dropped a hint that one day he might again overcome his shyness and give us some more historical touches which, to judge from his brief forecast, would be quite as vivacious and entertaining, if not so scurrilous, as the Wakley episode. Now that he has roused in so many of his listeners an urge to know more about the historical side of Guy's, Mr. Eason must not be allowed to forget his promise. Especially is this so because the history of Guy's is as yet incompletely recorded. What might, perhaps, be called the official history of the Hospital has been written by Wilks and Bettany, but that goes no further than 1890. At the time of the Bi-centenary the *Gazette* was fortunate in having Sir William Hale-White to contribute an article which carried the scene a little farther on, but, apart from these two records, the keen historian has little to which he can readily turn. Nearly everyone has some yearning, some hankering for a historical background. It may be in the buildings, their form and development; it may be in the personalities, an enthusiasm to peer into the characters of those who look down on him from the walls of the Committee Room;

or in the anecdotes that can be amusingly told in the Dressers' Room; it may even be in the statistics which reveal the growth and progress of the Hospital. But, whatever the taste, it cannot be entirely satisfied, and there is surely justification for the plea that the history of Guy's be brought as up to date as possible.

AT a meeting of the Residents held on Monday, October 31st, Mr. G. W. Hall-Smith was elected President and Mr. C. E. R. Wood, Vice-President, for the ensuing three months.

THE debate with the Nurses' Debating Society has been postponed until after Christmas.

Earache

By W. M. Mollison, Esq.

PAIN in the ear, like pain in other parts of the body, is due to local involvement of the twigs of the nerves supplying the ear and its immediate surroundings, and to painful sensations referred to it by branches of the same nerves which supply structures remote from the ear.

Earache is a term which has a somewhat wide significance; it does not confine itself to the tympanic membrane and meatus, but is used also to express pain in the auricle, pain in front of and behind the auricle.

A study of the nerves supplying the ear and the surrounding parts will make one realise from how wide an area pain may be referred. But there are structures, other than those of the ear, that can be the source of pain.

Consideration of the anatomy of the external ear and its immediate surroundings leads to an understanding of the local causes of earache.

The auricle and meatus consist of cartilage with its perichondrium covered with skin and slight subcutaneous tissue; in the meatus the tissues are very dense, so that pressure or stretching tends to produce much pain—pressure may come from wax or foreign bodies, stretching from inflammation, local or diffuse.

The perichondrium is not closely bound to the cartilage, so that injury may lead to effusion of blood between them; these hæmatomata cause pain.

The edges of the auricle are very exposed, and thus apt to become the site of frost-bite. The auricle may be affected like other parts of the head with rodent ulcer or epithelioma. Also, gouty deposits may occur in the auricle.

Attached to the tissues of the auricle are the small muscles that move the auricle; the retrahens auriculam may be of a reasonable size. Should these muscles be the seat of fibrositis they cause pain.

In the immediate neighbourhood of the ear are lymphatic glands, one small group immediately in front, one behind on the mastoid process and one just below the auricle.

The glands drain the auricle and meatus, but also a large area of scalp above and behind the ear. Should earache be found to be due to lymphadenitis of these glands, the scalp must be examined as well as the auricle and meatus; even small scratches on the scalp cause considerable enlargement of the glands on the mastoid.

Recently a man was seen with "earache." There was swelling over the mastoid, the swelling was very tender and the skin over it red and shiny; the meatus and membrane were normal. A small, almost healed, scratch was found near the middle line of the scalp; the patient then remembered he had scratched his scalp with a new comb some week or so previously, and the painful swelling was the resulting lymphadenitis of the glands over the mastoid process.

The nerve supply of the skin of the scalp and the ear must be next considered.

The ascending branches from the cervical plexus arise from the second and third cervical nerves; they form the small occipital and great occipital; the former supplies the skin behind the ear, the pinna and the scalp above the ear up to the middle line of the head. Herpes Zoster sometimes attacks the second and third cervical nerves; pain is then experienced over the distribution of the small occipital nerve with an herpetic eruption on the scalp; this pain is often described as earache, but examination of the ear reveals nothing abnormal. Discovery of spots on the scalp and perhaps on the pinna may give the clue to the herpes; the small glands lying on the mastoid enlarge as do glands in other cases of herpes, and this, too, will aid diagnosis.

The pain of herpes is very severe, and sometimes the herpetic eruption does not occur, or may not have developed, or may have healed when the case is seen; the glands over the mastoid enlarge and cause tenderness. The diagnosis is then very difficult, since the possibility of infection in the mastoid may arise; however, a normal tympanic membrane and absence of deafness should lead to avoidance of this error.

The most important nerve of supply of the auricle, meatus and membrane is the fifth cranial. You all know how extensive is the sensory distribution of the nerve; through its first division it supplies the scalp above the eye and the upper eyelid and part of the nose; through its second division it supplies the skin over the main part of the face, the upper teeth and the paranasal sinuses, and through its third division it supplies the tongue, the lower teeth and the skin of the scalp above and in front of the ear, the pinna, meatus and tympanic membrane.

This last nerve is the auriculo-temporal; in its course from the trunk of the third division after its exit from the foramen ovale to the front of the ear it sends branches to the parotid gland, two twigs to the temporo-mandibular joint, supplies branches to the anterior wall and roof of the external auditory meatus and to the outer surface of the tympanic membrane. The main part of the nerve then passes upwards to supply the scalp above and in front of the ear.

As a proof that the tympanic membrane is supplied by this nerve is the following observation. For the cure of a case of trigeminal neuralgia of the second division of the fifth nerve, Dr. Harris injected the gasserian ganglion with alcohol. The resulting anæsthesia was excellent and involved the third division; in consequence, the auditory meatus was insensitive. Actually the needle at the injection injured the Eustachian tube and blood was effused into the tympanum, and this eventually necessitated incision of the membrane. This incision was painless, but when the myringotome touched the inner wall of the tympanum pain was experienced.

It is to be noted that the second division of the fifth nerve as it enters the infra-orbital canal sends twigs to the periosteum of the orbit.

Pain can be referred from one branch of the fifth nerve along another branch and thus to a remote area. Theoretically, pain due to involvement of the terminal twigs of the first division could be referred to the ear via the auriculo-temporal; actually, it is rare for pain to be referred to the ear except from the third or mandibular division, though pain may be referred from the second division.

Experience shows that affections of the lower teeth are the commonest cause of referred pain in the ear; caries of the molars, especially the third, and pressure by an unerupted wisdom tooth against the second molar must always be sought for as a cause of earache. Actually, caries of any lower tooth may also be a cause.

Infants often rub their ears and give evidence of earache, and this is, no doubt, due to erupting teeth, in the absence of local signs of inflammation in the ears.

On one occasion only I have seen a case of aching in the eye and ear which was due to an unerupted third molar. A girl of 21, sent me by Dr. J. Bromley, complained that for six months she had aching at the back of and above the left eye, and the pain radiated into the left ear. She had had some spots in the eyebrow. No local signs were to be found in the eye or ear, but the left lower third molar was unerupted, and X-ray photograph showed this unerupted tooth pressing against the second molar.

Extraction of the second molar immediately stopped both the pain in the eye and the ear.

It is possible that the pain in the eye was referred along those twigs to the orbital periosteum from the second division of the fifth nerve.

Occasionally caries and non-eruption of the upper third molar is the cause of earache.

Bearing in mind the twigs given off by the auriculo-temporal, it is clear that inflammation of the parotid gland is a cause of earache, also affections of the temporo-mandibular joint such as rheumatoid arthritis.

Affection of the parts supplied by the other branch of the mandibular division of the fifth nerve, the lingual, may give pain in the ear. Most of you must have seen patients with ulcerations of the tongue who complained of earache; carcinoma linguæ and tuberculous ulceration both cause earache.

The next important nerve to be considered is the ninth or glosso-pharyngeal. The distribution of this nerve is wide; by the tympanic or Jacobson's nerve it supplies the inner wall of the tympanum; from the plexus it helps to form there twigs are sent to the mastoid antrum and Eustachian tube.

Its more extensive area of supply is in the pharynx—through the pharyngeal plexus it supplies the pharyngeal and nasopharyngeal wall with the Eustachian cushion; the posterior third of the tongue, the tonsils; lower down, the epiglottis and aryteno-epiglottidean folds.

Knowing this distribution, it is simple to suggest causes of earache referred from this nerve: affections of the pharyngeal wall—inflammations and ulcerations; carcinoma of the nasopharynx and Eustachian cushion; tonsillitis, very common, and carcinoma of the tonsil; carcinoma of the back of the tongue and epiglottis; lastly, growths of the aryepiglottic folds, in which cases earache may be the earliest symptom of that disease.

Neuralgia of cranial nerves is known to you, but probably that of the fifth is best recognised. However, the ninth may be the seat of a neuralgia,

and this glossopharyngeal neuralgia gives very severe pain in the ear. Other symptoms are pain in the throat, notably the tonsil, and this pain is always much accentuated by talking. So severe is the earache and pharyngeal pain that operation to avulse the nerve at its exit from the jugular fossa has been performed.

Another nerve that is the cause of pain is the facial. Probably through the pars intermedia of Wrisberg, the facial supplies the skin of the concha and small part of the floor of the meatus. Inflammation of the geniculate ganglion results in pain referred to the ear and herpetic eruption over this area of skin; the pain may be severe and the herpes is not always obvious. This affection is called herpes auris.

The eighth nerve may be involved at the same time, both the cochlear and vestibular divisions, so that the patient may be deaf and suffer from vertigo.

It is easy to see that confusion may arise in diagnosis in such a case; earache, deafness, giddiness, tenderness over the mastoid, on account of involvement of the glands there, together make a picture very like that of mastoiditis. A normal tympanic membrane and the herpes or scars of the herpetic spots will help to avoid error.

In this sketch of the causes of earache it is evident that local inflammation of the meatus and tympanic membrane has been excluded.

Bright Intervals—VI

I HAVE a friend called Billy Boy
And one called Sunny Jim,
And when I'm ill I send for Bill—
I'm very fond of him.

Although I ask for Billy Boy,
Jim comes along as well;
Between the two just which is who
It's very hard to tell.

They sit with me for hours on end
And comfort me a lot;
They have a knack—behind my back—
Of cooling when it's hot.

They often spend the night with me
And sleep with me in bed;
It's quite a sqeeze for chaps like these
When lying tail to head.

My Billy puffs his body out,
His skin goes firm and red;
I find it best to have him dressed
Before he comes to bed.

But Sunny Jim is rather slim,
My Bill can show him up;
Unless my friend begins to mend
I'll have to blow him up.

When Billy came to me one day,
He'd put no end of fat on;
I showed him what a pot he'd got—
He very soon got sat on.

If you should meet my little friends
And treat them as you ought,
They'll do their best to soothe your rest
By giving their support.

"SINISTER."

A Medical Tour of some German Spas

By A. T. Fripp, Esq., F.R.C.S.

A PARTY of English doctors recently accepted the invitation of a group of German Spas and, under the guidance of Mr. R. O. Rohme, their representative in England, made a tour of some of their towns. During our visit we had an opportunity of inspecting the methods of treatment and of discussing with the German physicians the claims that they make for it and the cases for which it is suitable. I must admit that before going I was extremely vague and rather sceptical about what could be done by spa treatment, but my visit to Germany has impressed me both with the efficiency of the treatment at each place and with the excellent results that are obtained in suitable cases.

I feel that many recently-qualified men, in the same boat as myself, may be rather uncertain as to what balneology implies and what can be done at a spa. So before describing each town I propose to give a short account of the methods generally employed. The spas owe their origin to the water which comes to the surface as springs

and there are several of these in each place, from four up to twenty or more. But, while springs only a few miles apart may differ widely in their temperature, composition and reaction, the water from each remains constant from year to year, with sometimes a slight seasonal variation. Some contain carbon dioxide and so are effervescent, and upon these details depend the diseases for which they are suitable.

In some cases the springs have been known of since the days of the Roman Empire. For instance, at Aachen there are records of the emperors of those days having visited the town for treatment, and so the waters are intimately connected with its history and importance. In other cases the springs have been discovered recently and a flourishing town has grown up round them.

A patient on his arrival undergoes a thorough examination, and any special investigations that are necessary, such as X-rays, test meals or blood counts, are carried out in the laboratories, which are well equipped and up to date.

The physician goes into the details of the treatment. This may be divided into two parts, the basis of the first being the bath. The bath-rooms are a series of cubicles opening out of a long corridor, and the bath itself is like one in a private house, except that it is usually level with the floor and easy for the patients to get in and out. Sometimes it is arranged so that a masseur can get in and massage the patient in the bath. The time, which may be from ten minutes up to half an hour, the temperature and the nature, whether effervescent or not, are details which are given by the physician; and, in addition, some form of physiotherapy is usually prescribed, either massage and exercises, mud pack or paraffin bath, a Turkish bath or inhalation of the vapourised water. The treatment varies from day to day, and is made to tax his strength more or less according to the patient's progress.

The second part of the treatment is by diet and drink, combined with the performance of the ordinary rules of health. While the diet follows the lines generally recognised for any particular illness, great importance is attached to the second of these, and the patient is directed to drink a certain quantity of the water so many times a day from a certain spring. This will clearly act partly by increasing the fluid intake, but the spa physicians claim also that the salts after their absorption into the blood-stream reach every cell in the body, and so are capable of affecting the whole metabolism. The observance of the general rules of health is none the less important, because it is often neglected, and this is given its proper place in the cure.

Aachen (or Aix-la-Chapelle), Wildungen, Nauheim and Neuenahr were the places we visited. The spas are situated in the western part of Germany and the journey takes about 12 hours from London, so that they are within easy travelling distance for English visitors.

AACHEN

Aachen is a large town close to the Dutch and Belgian frontiers and about 40 miles west of Cologne. Unlike the other spas we visited it has also a big industrial population. On the morning after our arrival we were met by Dr. Lieven and Dr. Schuster, who explained to us their methods of treatment and then showed us the bath establishments at the Quellenhof, which is the most luxurious and has a thermal swimming pool. We then went to the Cornelius-bad, which again combines the hotel and bath-house in one building, and although it is much less expensive, the treatment available is exactly the same as elsewhere. Lastly, we saw over the Landesbad, which is for panel patients of the Rhine province.

Aachen specialises in the treatment of rheumatism, gout and sciatica. The importance of the springs lies, firstly, in the high temperature—99 to 150° Fahrenheit—at which the water comes to the surface. Consequently it does not have to be heated artificially, and they are emphatic that heating the water destroys some of its therapeutic qualities. Secondly, the water contains sulphur as sulphuretted hydrogen, as sodium hydrogen sulphide and as colloidal sulphur, which they claim can readily be absorbed by the skin and lungs and from the alimentary tract. It makes the water useful also in certain skin diseases, such as psoriasis and eczema. Thirdly, the water contains sodium carbonate and so is alkaline.

The most important part of the treatment consists in the various forms of bath. Each bath is built so as to accommodate the patient and the masseur, who can then regulate the temperature, starting at body heat and slowly raising it without causing shock to the patient. Either the whole body or one limb can be immersed, and massage and gentle movements can be carried out with the limb under water. The warm bath causes relaxation of the muscles, and the joint can often be moved through a range which would be extremely painful if attempted without other treatment. They attach great importance to combining movements with the bathing.

A very useful adjunct to the bath treatment is the douche-massage which was elaborated at Aachen. This consists in allowing a jet of water to play upon the joint while the limb is under the water, so that the force of the steam is broken

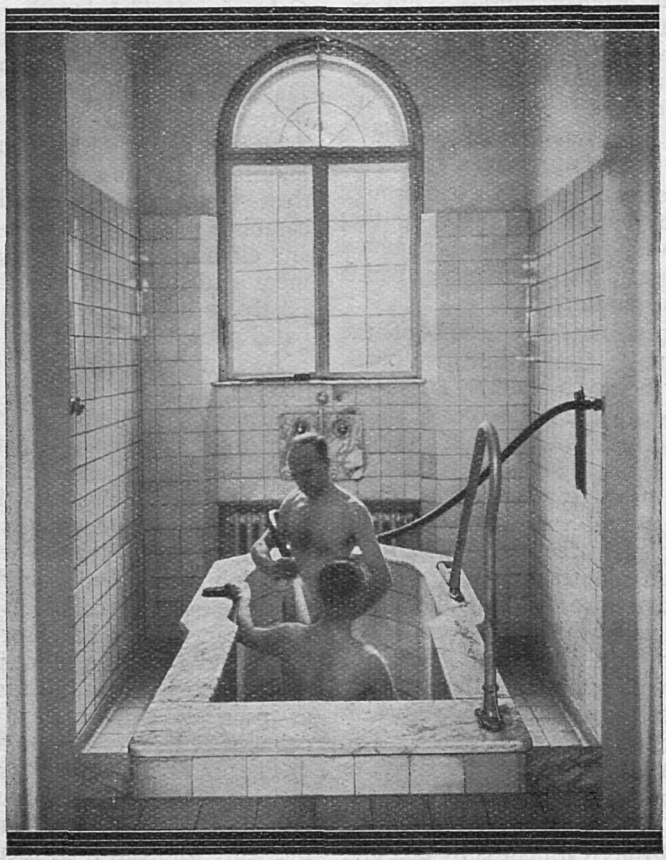
by the water and can be accurately regulated. If the joint is painful, the stream playing upon it is very gentle, but as it improves the force is increased, and this treatment, combined with the bath, gives excellent results in rheumatism and neuritis.

While the baths are the basis of the cure at Aachen, other forms of treatment are not neglected. The physicians make a point of combining balneo-therapy and physiotherapy, and there is a well-equipped gymnasium with machines devised for exercising each individual joint and apparatus for Swedish exercises and weight-reducing. It was a refreshing sight to see some members of the party undergoing the treatment and losing some of the weight they put on as a result of the German hospitality.

The bath establishments are directly connected with the hotels, so that the patient can be taken straight from his bed to the bath without going into the open air. The diet is carefully regulated, and the hotels are ready to carry out any instructions given by the doctors. Drinking the waters is an important part of the cure, as sulphur is readily absorbed from the intestinal tract, and a mud pack with sulphur mud and inhalation of the vapourised water are also prescribed.

Aachen used to derive many of its patients from the fact that much larger quantities of mercury can be tolerated in the presence of sulphur, but the introduction of arsenical compounds diminished the demand for this treatment. A legacy of the past is found in the gymnasium, where there are many ingenious devices for re-educating the tabetic and improving his gait.

One of the strongest pieces of evidence of the good results following the cure is the fact that a large clinic for the treatment of working-class patients has been established by the authorities of the Rhine Province. The clinic was built just before the war, and, although at present the number of patients is reduced for economy, many



Aachen.—The Under-Water Douche

poor people are sent there and the scheme is financed by a form of health insurance. The treatment available is exactly the same as that in the expensive hotels, and the authorities must have satisfied themselves that it is a good investment for the State.

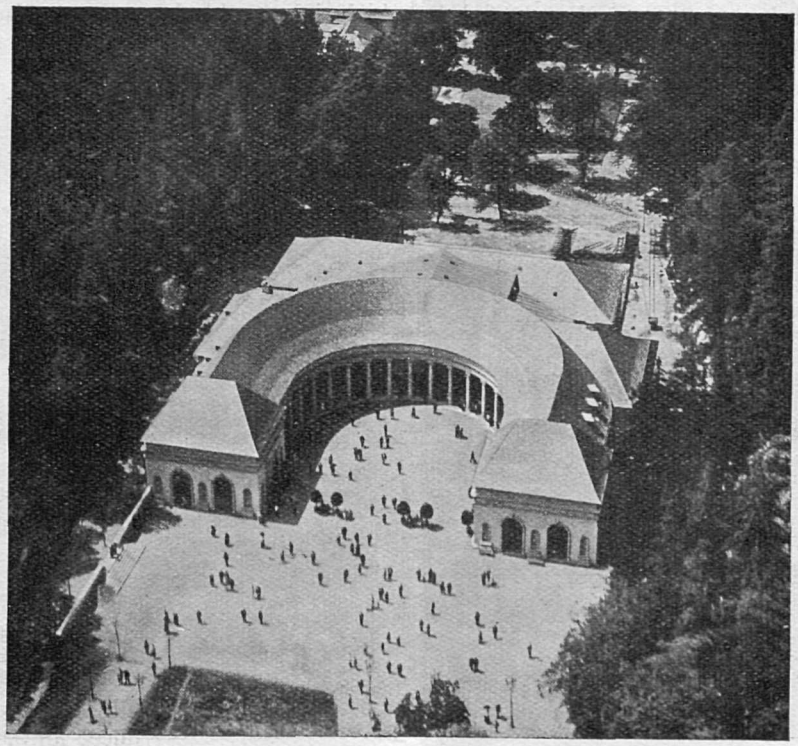
No account of our visit would be complete without thanking Dr. Scheuer, the Deputy Mayor, who welcomed us to Aachen and entertained us most hospitably. There is much of historical interest, especially the magnificent Town Hall and Cathedral, which were built in the reign of Charlemagne; and it was due to Dr. Scheuer's kindness that our visit was of personal as well as of medical interest.

WILDUNGEN

Wildungen, the next place we visited, is a little town of 4,000 inhabitants which has grown up round the springs, and its development as a spa is due to the initiative and energy of the Kur-Director, Herr Kirchner, who has built several excellent hotels and a large bath establishment and pump-room, and has organised it as a first-rate health resort visited by 15,000 people each year. Its growth and success must be a source of great pleasure to him, and he is to be congratulated upon his achievement. Wildungen is situated in the province of Waldeck and is, I think, the most beautiful of the spas we visited. There is trout-fishing and golf, and one could well spend a pleasant holiday there apart from taking a cure.

It specialises in the treatment of diseases of the kidneys and bladder, especially cystitis, pyelitis and kidney and bladder stones. Of the four main springs used for drinking two are acid and two alkaline, and they vary also in the concentration of the salts, so that the physicians have at their disposal spring water suitable for the various urinary troubles. The bathing house has a large number of baths, a Turkish bath and an inhalatorium, and, as elsewhere, great importance is attached to this part of the treatment.

Herr Kirchner was at the station to meet us, and, thanks to him, we spent a most enjoyable two days at Wildungen. On the morning after we arrived we assembled at 8 o'clock and walked about half a mile to the pump room. It is the custom for the visitors to go down before breakfast each morning and, while the band plays, to stroll about and drink the waters. They have, of course, been instructed by their doctor how much water to take and from which spring, but our party was a little vague in this respect and tried all the



Wildungen.—Aerial View of the Pump Room and Promenade Hall

springs in turn. We were then able, for the rest of the morning, to experience the excellent diuretic action of the waters.

After breakfast the Kur-Director showed us the bath hotel and the bath house, and most of us had a CO_2 bath. The water is naturally effervescent and the temperature about body heat. One would not expect any great effect from having only one bath, and what one noticed chiefly was that one felt a little relaxed afterwards and that the superficial arteries were dilated.

In the afternoon we motored to Wilhelmsohle, an artificial castle perched on the top of a hill from which there is a magnificent view of the surrounding country, and then had tea at a restaurant which was used by von Hindenburg as his headquarters during the last stages of the war. In the evening we were entertained to dinner and afterwards at a dance by Herr Kirchner and the physicians of Wildungen. We had an excellent evening and some members of the party found the liquors definitely stimulating.

NAUHEIM

Nauheim was a small town of little importance, lying in a fertile plain and making its living by agriculture until the beginning of the last century, when the springs were discovered and its success as a spa was founded. The modern part of the town was rebuilt between 1905 and 1911, and the bathing establishments and pump room were brought up to date. Since then the Municipality has made a nine-hole golf course, tennis courts and a very pleasant park and public gardens.

It is essentially a spa for mild and moderate cardiac insufficiency, contra-indications being advanced heart disease, severe arterio-sclerosis or coronary atheroma, and cases complicated by embolism or nephritis. The balneological university institute is equipped with the most up-to-date apparatus for the investigation of patients and for research, and a great deal of work has been done recently upon heart disease and particularly upon the effects of the bath treatment. An instrument which was new to most of us was one for broadcasting the heart sounds and they claimed that it was useful for investigation and for teaching purposes, but it seemed that a minute alteration in the instrument would distort the actual murmurs, and I doubt whether it is really of much use.

There are several springs at Nauheim, some of which are used for the baths and others for drinking water. They come to the surface at considerable pressure and just under body temperature, and they are so rich in carbonic acid that the baths have to be made of special timber, as porcelain and metal are corroded by the action of the acid.

It is naturally effervescent warm water, with a high iron and salt content. Various kinds of baths are used :—

Nauheim.—The Big Spring and one of the Bath Houses

(*a*) The " Sprudel-bath."—The water is taken straight from the spring to the bath-tub without coming into contact with the open air.

(*b*) The " Thermal Sprudel-bath."—The water does not come into contact with the open air, but is allowed to stand in cisterns, and so a small part of its CO_2 is given off.

(*c*) The " Thermal Bath."—The water is allowed to stand in open basins and a large part of the CO_2 escapes before it is used.

(*d*) The " Brine Bath."—The brine is obtained by freeing the spring water of its iron and lime salts and its CO_2 and then artificially heating it.

The various kinds of baths have been elaborated because in some cases a " sprudel " bath with a full CO_2 content exhausted the patient, and at the beginning of the cure a bath with diminished CO_2 produced a better result. Later on he would be able to tolerate a " sprudel " bath.

Patients with heart disease have gone to Nauheim since 1835, and at first the treatment was purely empirical. Recently, however, a large amount of research has been done on the action of the baths. Firstly, it has been found that the CO_2 stimulates the skin in its various functions and that, as the action of the skin is closely related to that of the endocrine, vascular and alimentary systems, the effect of the baths is one of general stimulation to the body. The effect on the blood pressure is to cause a slight temporary fall. Secondly, the respiratory volume is increased and the CO_2 output is raised while a patient is in the bath. This occurs when precautions have been taken to prevent the inhalation of CO_2 given off from the bath. Whether this is due to the absorption of CO_2 by the skin or to other causes has not been proved, but the quantity of CO_2 in the blood is in excess of the normal and so respiration is increased.

There are five springs used for drinking purposes, two slightly saline, one chalybeate and two pure saline. The effect of the high salt and sodium bicarbonate content is to stimulate peristalsis and promote the excretion of toxins by the alimentary tract. There is so much salt in the water that patients are advised not to take salt with their food.

The Kerckhoff Institute has been built and lavishly equipped at a cost of 2,500,000 marks by the generosity of an American widow, Mrs. Louise E. Kerckhoff, in memory of her husband. This is also for cardiological research, and is more American than German in its conception and methods of administration.

NEUENAHR

Neuenahr, our last stopping place, is a delightful little town in the valley of the Ahr, a tributary of the Rhine. On our way there we travelled down the Rhine valley from Mainz to Remargen, and it was fascinating to watch the castles, their towers caught by the setting sun and each one perched inaccessibly on a hill-top, where, by overlooking a stretch of the river, each gave its mediæval baron command of his little piece of the fertile valley. The steep slopes of the hills have been converted into terraces, and every available square yard is used for growing vines. Our train carried us all too fast round the many bends of the river, but, even so, one was able to catch a little of the romance of the Rhine.

At Neuenahr everything centres round the large thermal bathing house, with its 134 bathrooms and all the appliances for hydrotherapy, including douches, inhalations, carbonic acid and hydrogen baths. The Kur-hotel, under the supervision of Dr. Rutten, is directly connected with the bathing house. This is a modern but inexpensive sanatorium fully equipped with laboratories and X-ray apparatus, and designed to meet the needs of the middle-class patient. I should mention that " sanatorium " conveys an incorrect meaning to most Englishmen. To us it means chiefly a place for the treatment of tuberculosis, and therefore one to be avoided by other invalids ; whereas in Germany it means a combination of hospital and hotel with comfortable lounges and reading-rooms for the treatment of paying patients, and having no connection with tuberculosis. Here the patients pay a charge which includes board and lodging, medical attention and treatment, and so has the great advantage that anyone going there knows beforehand what his expenses will be.

Neuenahr is especially suitable for metabolic diseases, and in particular diabetes, gastro-intestinal troubles and diseases of the gall bladder and kidneys.

Dr. Rutten met us on our arrival and the next day showed us round the spa and entertained us most hospitably. The springs come to the surface in the middle of the gardens, and when one has come to regard a tap as almost the natural source of water it is interesting to see it come bubbling out of the ground before it is led away to be used in the bathing establishment. The hard tennis courts looked excellent, and we were fortunate in finding a match on between teams representing the Rhineland and Berlin, and in being able to watch some interesting tennis.

We motored some way up the Ahr valley and saw again the intensive cultivation of the surrounding hills for vines. Children held up bunches of the grapes, which were just getting ripe, for us to buy, but, although we had ample opportunity during our tour of drinking and

appreciating the wine made from them, the grapes in the natural state are small and uninteresting.

On our way home we stopped for a few hours in Cologne. We were taken over the factory of the firm of Bayer and saw the production of patent medicines on a vast scale.

At each spa, in addition to the treatment, a lot of time and money is spent by the administration on making the visitors' stay as pleasant as possible. The parks and gardens are very well kept, hard tennis courts have been built, and a golf course is usually to be found. The latter must be largely for the benefit of the English and American visitors, and, although it is not a game much played in Germany, the greens were well kept, and at many of them there is an English professional. With the German love for music, there are always excellent concerts and often a season of opera.

The season is from May to the end of September, but treatment is available all the year round. The hotels are comfortable and the food and service excellent. The prices vary from 7 marks upwards in the cheaper to 12 up to 20 marks per day in the expensive hotels, including full board and lodging. The cost of treatment will, of course, vary according to the severity of the disease and the length of stay, but for one month, which is the usual time the treatment, including doctor's bills, will cost from 300 to 400 marks—£20 to £30 at the present rate.

It must occur to everyone to ask how much of the treatment carried out at a spa can be done at home, and whether a patient with heart disease or rheumatism could not derive as much benefit

Neuenahr.—The Great Spring

at less cost to himself by drinking so many bottles of water from the appropriate spa and undergoing treatment in the nearest town having an equipment for physiotherapy.

This is certainly true up to a point, and I think that the increased fluid intake and the observance of the ordinary rules of health ordered as part of the cure can account for part of the benefit which patients derive from visiting a spa. But there are other points to be considered. The spa physicians lay great stress on the importance of the baths themselves in the treatment and assert that the waters lose some of their qualities if they are kept any length of time or if they are artificially heated, so that the patients can only undergo this part of the treatment at the spa itself. With regard to this point, it must be remembered that what was at first a purely empirical cure has recently been the subject of intensive research, so that it is now carried out accurately and scientifically. There is a wealth of clinical material upon which experience has been gained, and, furthermore, the treatment has stood the test of time.

But there are two other factors which do not apply to any treatment carried out at home. The first is the element of suggestion which is so important whatever the illness and whatever the remedy. A patient goes to a place which has the reputation for curing his particular complaint and he expects to get better. He puts himself completely in the hands of a physician, the details of his cure are elaborated and the atmosphere of suggestion is carried on throughout the treatment. Secondly, there is the change of air and surroundings, combined with rest and regular habits. This applies both to the overworked business man, who loses sight at home of the importance of keeping fit, and to the chronic invalid who cannot get about much and who may have little to do but to think whether his pain to-day is better or worse than it was yesterday. His routine is broken. Foreign customs and new experiences go far towards making him forget his own troubles.

In conclusion, I should like to thank the administrators of the spas and the German physicians most heartily for their hospitality, and to assure them that we enjoyed our visit very much. If any English doctor is thinking of spending a holiday or taking a cure abroad, I can assure him that he will have a very pleasant time at any of the spas, and the authorities are delighted to welcome medical men and their families on very reasonable terms. Their representative in England is Mr. R. O. Rohme, 90, Sheaveshill Avenue, N.W.9 (Colindale 8483), who will give them full details.

Correspondence

House Officers and Christmas

To the Editor of the GAZETTE

SIR,—Dr. Conybeare's letter in your issue of October 15th raises a matter in which I have long been interested. It appears to me, however, that any effort to relax the tyranny of Christmas at Guy's—if I may borrow an apt phrase—must come from the Residents themselves.

Certain of your readers may recall a somewhat disputatious meeting of the then Residents about two years ago, at which a group—of whom I was one—tried to initiate what we regarded as a very needful reform. In our main object of abolishing the "Niggers" we were not successful, but we succeeded in restricting solo performances to those members who volunteered to perform them.

I was not at Guy's during Christmas, 1930, but I gathered that the performance of the "Niggers" was improved by the absence of solos from those who lacked musical talent, and I should imagine that the severe psychological trauma to both performer and audience was somewhat diminished.

Yours, etc.,

H. RICHARDS.

Sudan Club,
Khartoum.

The Anti-Christmas League

To the Editor of the GAZETTE

SIR,—The President and members of the Anti-Christmas League desire to correct a misstatement on the part of your correspondent, Mr. Samson Gubb. Dr. Conybeare is not, and never has been, a member of the Anti-Christmas League. In view of the sinister rumours that have gathered around this society, we wish to make its objects somewhat clearer.

The Anti-Christmas League was formed by a select fraternity whose æsthetic tastes revolted against the forced gaiety usually associated with Christmas Day. The society determined to celebrate whenever its members felt so inclined, rather than on an officially allotted day. The society has, however, prepared for the use of its members a synthetic drug which, taken with due ceremony in the middle of December, will produce complete amnesia for the duration of Christmas.

Should Dr. Conybeare care to attend our next meeting, we will undertake to produce in him, not only a state of amnesia, but even complete anæsthesia which will last him till January.

Yours, etc.,

THE ANTI-CHRISTMAS LEAGUE.

Guy's Hospital, S.E.1.

Hospitals and Finance

To the Editor of the GAZETTE

SIR,—The general public are frequently reminded of the financial difficulties of our sister hospitals, but little do they realise that Guy's is also badly in debt.

Last week the Middlesex Hospital held its Annual Ball for the purpose of raising funds, and, at the same time, provided its supporters with a first-class evening's entertainment. Although not knowing the figures, there must have been about 1,000 people present, and quite an appreciable profit on the 5*s*. tickets must have been made.

What comparable effort do we, as a hospital, make to reduce our debt?

Our Residents provide an Annual Ball, usually at one of the more exclusive hotels, and, consequently, the price of admission is prohibitive to many. The Ladies' Association and other enterprising bodies get up periodical entertainments and dances, from which the financial gain to the hospital is small, though none the less valuable. There is no really big effort, however, to collect anything which will make any real difference to our debt.

It is for this reason that I would like, through your columns, to suggest that those who have the financial welfare of Guy's at heart should follow the good example set us by the Middlesex, and organise a charity dance on a large scale.

Yours, etc.,

F. J. CURTIS.

The College,
Guy's Hospital, S.E.1.

The Nurses' Dance

TWO inconspicuous notices in the precincts of the hospital recently announced the fact that a dance would be held in the Nurses' Home on Thursday, November 3rd, in aid of the Cosmo Bonsor Memorial Fund. In spite of poor advertisement, the dance was very well attended, the capacity of the Revelstoke Memorial Library being tried to its utmost. Personally, we thought it quite one of the most enjoyable functions which we have assisted at during the past few years at the hospital. There was a pleasant air of informality; all present went there to enjoy themselves, and appeared to succeed in doing it. We would congratulate the organisers on their policy of "Small profits, quick returns"; at least, we imagine their profits must have been on the small side, judging from the excellence of all arrangements and the small sum we were asked to disburse.

The Revelstoke Library lends itself excellently for such a purpose, and if outsiders can be judges, seemed to cause a minimum of upheaval in the normal routine of the Home. This being the case, we are tempted to believe that there may be some truth in a rumour which whispers that an attempt is being made to make a regular feature of similar dances at not too infrequent intervals. Opportunities for pleasurable exercise in the Borough are few and far between. Given two colonies of able-bodied people, living within a few yards of each other and both bored with the constant society of their own sex, we heartily give our support to a plan which would lead to an increase in the number of occasions when such opportunities are available, limited in the past to the annual Nurses' Dance (and, for the few, the Sisters' Dance) and this year increased by the forthcoming debate. Until some public-spirited soul succeeds in burning down the College and causing a new one to rise in its place we fear that hospitality will have to remain one-sided, unless it is a ballroom they are building on the roof of Out-patients!

Sport

Rugby

Guy's v. Cheltenham

ON Saturday, October 29th, Guy's visited Cheltenham and were defeated by a placed goal (5 points) to nil.

The Hospital lacked the services of Windsor Lewis and J. P. O'Shea, but A. G. Johnson and D. E. Ashdown returned to take up their respective positions at wing three-quarters.

The conditions were deplorable and all against good rugby. The afternoon was bitterly cold, and rain fell heavily as the teams came on to the field. Guy's were seriously handicapped in this game as they lost K. A. Stanyon, their scrum half, just before the interval and W. B. Clegg retired just before the finish.

The home side had the good fortune to win the toss, and therefore took advantage of a strong wind. Their forwards came away with a brilliant

forward dribble to the Hospital's 25, but they were soon repelled as the result of fine defensive play by the Guy's back division.

After Clegg had cleared his lines and had set the threes on the offensive, the home full-back brought off a splendid tackle and found touch with a huge kick. This led to a concerted attack by Cheltenham, and from a line-out Davis and Goodwin were held up in front of the posts.

Clegg was playing a fine game and his defence was excellent. After Holtan had missed a penalty, Lloyd cut through for the home side and, after being tackled in the Hospital's 25, the ball cannoned off Clegg to J. Davis, who picked up and ran in behind the posts for Holtam to convert. Vigorous play followed, and twice Stanyon was hurt in going down to the ball, and eventually had to be taken off the field.

Guy's started the second half with plenty of dash, and Hogbin just missed a penalty kick. A ding-dong struggle between the forwards followed, and the exchanges were fairly even, although the home side obtained the ball fairly regularly from the set scrums, due chiefly to the withdrawal of A. R. Clarke from the pack to take the place of Stanyon.

Holtam nearly increased Cheltenham's lead when his kick at goal fell short by inches, and then the Hospital forwards warmed up and put a tremendous amount of fire into their play. Led by Robin, Morgan and Hogbin, they carried the ball into the home 25 before sending it back to the threes, but Guy's were prevented from scoring.

After this, both teams went all out and a fine struggle followed. Thrills were plentiful, but near the end Guy's, handicapped by the absence of Stanyon and Clegg, began to waver, and were fortunate in not having their line crossed—only sound defensive work saved them.

Team.—W. B. Clegg; A. G. Johnson, I. K. Thomas, P. C. Alexander, D. E. Ashdown; J. E. Giesen, K. A. Stanyon; M. R. Kark, A. G. Heberlein, I. G. Robin, R. J. Drummond, R. A. P. Hogbin, T. Morgan (Capt.), C. S. Darke, A. R. Clarke.

Guy's v. Cambridge University

CAMBRIDGE University visited Honor Oak Park on Wednesday, November 2nd, and were successful by 3 placed goals and 2 tries (21 points) to a dropped goal and a try (7 points).

The 'Varsity having rested the previous Saturday, fielded a strong side, which, with one or two exceptions, will probably represent the University in their match against Oxford.

Guy's were without Windsor Lewis and W. B. Clegg, and with Stanyon injured, Eustace returned to scrum-half and gave a delightful exhibition, in spite of the fact that he was opposed by E. B. Pope, the International.

It was by far and away one of the best encounters seen at Honor Oak for many a day, and the Hospital have only themselves to blame for not obtaining the verdict in their favour—let it be said here and now that it was no fault of the pack, who played magnificently against their heavier opponents. As a matter of fact they did the major portion of the heeling in the set scrums and gave the backs sufficient chances to have scored on several occasions. Unfortunately, it was one of those matches where the machine went wrong at the critical moment—over-anxiousness may have been the cause of it, but it was apparent that there was a lack of confidence in the back division.

Had the ball been flung across to the wings a bit more before trying to cut through the centre, and had the short punt ahead been exploited, a different story might have been told at the end. The reverse pass was only attempted once throughout the game, and it nearly brought a score as a result.

On the other hand, Cambridge should be given the credit for taking advantage of the few opportunities that came their way; with such fast-moving forwards as they have, there was always at least three of the pack ready to carry on any movement between their threes which looked at all promising. This was very pronounced in the second half, when their forwards either scored or were responsible for the four tries registered after the interval.

The tackling on both sides, especially during the first half, was first-class; the players of both teams did not hesitate to go down to the ball and bring their man down with that degree of accuracy which is so often lacking in club matches. Undoubtedly this fixture reminded one of a typical hospital Cup-tie, with the exception that the football was of a much higher standard. Parker, for Cambridge, was almost perfect at full-back; his positioning and fielding of the ball being excellent.

During the first half the 'Varsity had the advantage of a slight breeze, and from the kick-off Cambridge marked and found touch in the Hospital's 25. Alexander relieved the situation with a fine run through the centre before he was brought down within a few yards of the line. Cambridge came away together and Guy's presented them with a "mark"—from the kick, Norwood just failed to score, but soon after a clever movement on the blind side of the scrum enabled Pope to

slip away and Mercer registered a good try as the result of a reverse pass by Anderson.

The exchanges for a time were fairly even, and then Reid tried a drop at goal and missed; from this kick the Hospital initiated a clever movement along the three-quarter line, which ended in Johnson crossing the line to make the scores level.

After Guy's had made several attempts to find touch, Parker found touch near the 25 line, and soon after tried a drop at goal. However, Guy's fought back and came within an ace of scoring on two occasions—it was only the result of poor kicking that enabled Parker to clear his lines.

Soon after the interval, Fyffe and Mercer made a brilliant run for Cambridge and, but for some excellent tackling by Alexander and Ashdown, would have scored. Guy's now settled down and did the bulk of the attacking, and it looked as though they would score at any moment, but the defence of the 'Varsity was sound, and then the surprise of the afternoon came when the ball was kicked over the Guy's line and Reid won the race for the touch-down, which Leather converted.

Guy's attacked strongly after this, but, from a line-out five yards from the line, Cambridge were able to relieve with ease, when Fyffe threw a long pass which found at least two of his forwards unmarked in the line-out. After Giesen had missed his man and W. J. Morgan had charged down a kick-ahead, the latter found touch cleverly. Soon after Johnson was caught in possession near the touch-line and Norwood obtained the ball and passed to Mercer; the latter cross-kicked to Delafield, who sent in Phillips for a try, which Leather converted.

Within a minute or two, Cambridge scored again as the result of a try by Delafield, which Leather again converted.

Towards the end Guy's tried hard to reduce the deficit, and, although they pressed continuously, they made poor use of their chances. Alexander missed an easy penalty kick, and a forward pass on the goal line threw away a certain try.

It was not until the last few minutes that Guy's scored as the result of a perfectly dropped goal by Giesen, but this was quickly followed by another unconverted try by Cambridge, when Anderson and Phillips broke through and Delafield scored in the corner.

Team.—W. J. R. C. Morgan; A. G. Johnson, I. K. Thomas, P. C. Alexander, D. E. Ashdown; J. E. Giesen, R. J. Eustace; M. R. Kark, J. P. O'Shea, A. J. Heberlein, I. G. Robin, R. J. Drummond, T. Morgan, R. A. P. Hogbin, C. S. Darke.

Association

Guy's v. London

PLAYING at Walthamstow on Saturday, October 29th, Guy's defeated London Hospital by 3 goals to 2.

In an effort to assist their rather weak forwards Guy's entirely re-shuffled their back division, Boucher coming up to right and Henderson to left half-back.

Straight from the kick-off Guy's attacked, and before many minutes' play were one goal to the good—Beach, cutting in from the right wing, put in a hard shot, which our opponents' right back deflected into his own goal.

London now began to press, and the defence had a very hard time to keep them from scoring. After a good amount of mid-field play London scored through their outside right. Guy's retaliated, and Colbert put in a good shot which completely beat the goalkeeper. At half-time the score was 2—1.

The second half was characterised by the great amount of mid-field play it produced. Both sets of half-backs were playing excellent football, trying hard all the time to get their forwards going by long ground passes. Guy's added to their lead through Colbert, who was playing a very good game as outside left.

London broke through the centre just afterwards and scored, this time through their centre-forward. Soon afterwards the final whistle blew, and so ended a most enjoyable game, only spoilt by rain towards the close.

Team.—G. Hill; J. Bromley, D. Priestley; C. A. Boucher, S. E. Osborne, R. C. O. Henderson; E. A. Beach, E. Musgrove, W. Groom, G. C. Sprigins, J. C. Colbert.

Hockey

Guy's v. Bournemouth

GUY'S visited Bournemouth on Saturday, October 8th, and lost 0—6. A much depleted 1st XI travelled to Bournemouth owing to absentees on holiday and to last-minute changes.

The Bournemouth forwards were quick, experienced and well supported by their halves, and very soon had Guy's on the defensive. Two goals were scored in the first half, one a very good one from a fine angle. After the interval, Guy's played up well and kept the opposing goalkeeper busy for a time, but without getting through his defence. Our opponents seemed to have the knack of scoring two quick goals at intervals

throughout the game, and some of these were from excellent shots.

Team.—E. A. Mayston; T. E. Mitchell, O. B. Alakija; T. D. Ridsdale, A. G. Richmond, H. B. Smith; W. H. Hamilton, J. W. Dryland, L. N. Trethowan, S. W. Wright.

Guy's v. University College

AT Motspur Park on Saturday, October 15th, Guy's lost to University College 0—8. At the beginning of the game Guy's held their own, and might have scored if the chances offered had been taken. The University College team soon settled down, and their superior combination soon began to tell and they scored three times in the first half.

After the interval both teams slacked off, and then Guy's played really hard for a time, but the shooting of the forwards was bad. They were much upset by the University College left back, who played a very good game. Towards the end the Guy's defence cracked badly, and several goals were scored against them in rapid succession. The whole team seemed at sea, and it was only Mayston's good goalkeeping which saved the side from a heavier defeat.

Team.—E. A. Mayston; T. E. Mitchell, F. N. Corfe; R. G. Archer, A. G. Richmond, A. W. Turner; C. A. Clarke (Capt.), E. B. Rowe, J. W. Dryland, J. O. Jelly, S. W. Wright.

Guy's v. Woolwich Garrison

ON Saturday, October 22nd, Guy's defeated the Garrison 1—0 at Woolwich. Starting with the rain in their faces, the Guy's defence was very hard pressed for the first few minutes, and it was not until after a corner had been conceded and that Mitchell had saved a certain goal when the goalkeeper was out of position that the pressure was relieved. Guy's then took up the attack, and it was not long before Franklin made the most of a pass received outside the circle and scored a very neat goal.

The play was even for a time, but with many stoppages for infringements by both sides. A spell of very heavy rain rather disconcerted all the players, but Guy's took to the water better than their opponents, and in the second half should have scored again.

The Garrison forwards made only occasional raids, but the Guy's forwards were continually attacking, only to spoil their own chances by getting off-side.

Team.—H. V. Brown; T. E. Mitchell, A. G. Richmond; A. W. Turner, R. G. Archer, S. W. Wright; C. A. Clarke (Capt.), E. B. Rowe, J. W. Dryland, J. B. Franklin, M. Farr.

Fencing

Guy's v. Masks

ON Saturday, October 29th, the first match of the season was fought against a strong team of the Masks at Aldershot. Guy's, who were without Paterson and Wright, showed a sad lack of practice, and were beaten by 19 defeats to 8.

The closest result was in foil, which was lost 5—4. Miles fought very well to win two of his fights. Forbes, after a good beginning, seemed to lose confidence, and could only win one. Morris achieved the same result. Each of our team was given a very instructive foil lesson by "Screw."

Lack of practice was very evident in epée. Morris fought well, but missed badly at a crucial point in his last fight. Irish seemed slow, but nevertheless won one of his bouts. Lawrence's point seemed to be everywhere but on his opponent.

Irish was the only member of the team to stand up to a strong sabre onslaught. His speed, which was in contrast to his previous slowness, and his refusal to be dismayed by the redoubtable "Screw," whom he defeated, were notable features of an excellent display. Morris had some close fights, but was not at his best, and the odds were too heavy for Forbes.

Scores: Foil—Miles, 1 defeat; Forbes and Morris, 2 defeats. Epée—Irish and Morris, 2 defeats; Lawrence, 3 defeats. Sabre—Irish, 1 defeat; Forbes and Morris, 3 defeats.

Golf

The President's Prize

THE meeting for the above will be held at Addington Palace Golf Club on Wednesday, November 23rd, and is open for members of the Staff and students.

Morning.—Medal Round on Handicap. Two prizes will be awarded for the best net scores, and one prize for the best gross score.

Afternoon.—Fourball Foursome *v.* Bogey. Two prizes will be awarded.

Anyone who is unable to manage the two rounds may enter either for the Foursomes or the Medal Round.

Entries should be made on the list in the Colonnade or sent to the Honorary Secretary.

Hospital Information, etc.

Notice

ON Saturday, October 29th, Bishop Paget, formerly Bishop of Chester, unveiled a tablet in the Chapel of Guy's Hospital to the memory of Caroline Cameron, b. 1851, d. 1929, daughter of the late Sir William Gull, Physician to Guy's Hospital, formerly a Sister in Charity Ward, Guy's Hospital, and wife of the late Dr. T. Dyke Acland, Physician to St. Thomas's Hospital, who died in 1913.

The ceremony was attended by the Rev. Canon J. B. Haldane, Chaplain to the Hospital, the Rev. Edward Royle, Acting Chaplain, Mr. T. W. G. Acland, son of Dr. Acland, and Dr. T. A. E. Stowell.

Pass List

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October, 1932.
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*J. P. Singer
I. Fichardt
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N. W. Gardener

(3) *Midwifery.*

G. J. Evans
L. Z. Cosin
R. J. Drummond
A. E. Jones
M. J. Lindsey
E. C. Zorab
M. L. Walt
C. V. Harries.
L. J. Stoll
L. C. Oliver
N. W. Gardener
H. P. Russell
H. T. Crondace
G. E. Walker
C. E. M. de Gruchy.

* Now qualified.

ADDENDUM.

L.D.S., R.C.S. (Eng.).
PART IIIb.
Dental Anatomy and Physiology.
J. H. Kendall

Papers by Guy's Men

J. L. Payne. Mouth conditions and general health. *B. Dent. J.*, liii (2), 1932, 349.

A. E. Rowlett. Prevention of caries. *B. Dent. J.*, liii (2), 1932, 376.

J. B. Parfitt. Joint meeting of British, Canadian and Ontario Dental Associations at Toronto, August 8th to 12th, 1932. *Dent. Mag.*, xlix, 1932, 1027.

B. Underwood. Foreign bodies in mouth. *Dent. Mag.*, xlix, 1932, 1019.

H. Barber. Clinical wisdom and health propaganda. *B.M.J.*, 1932, ii; *Supplement*, 196.

T. S. Keith. (1) Icterus neonatorum—congenital obliteration of bile ducts—specimen; (2) Congenital malformation of heart (specimen). *Proc. R.S.M.*, 1932, xxv, 1735, 36.

Sir E. G. Little. (1) Extensive lupus erythematosus with subsequent carcinoma of lower lip; (2) Swelling on right cheek—case for diagnosis—? granuloma annulare; (3) Cicatricial alopecia following impetigo of scalp. *Proc. R.S.M.*, 1932, xxv, 1741, 42.

Change of Address

S. Abrahams, M.D., 359, Grove Green Road, Leytonstone, E.11.

L. Harley, L.D.S., R.C.S. (Eng.), 430, Cranbrook Road, Ilford. *Valentine* 4832.

B. Kaplan, M.R.C.S., 569, Gale Street, Dagenham, Essex.

Lieut.-Col. S. H. Seccombe, A.A.M.C., Seaview Hotel, Sandgate, Queensland, Australia.

W. A. Brown, M.B., B.S., 10, Woodfall Street, S.W.3. *Sloane* 4483.

N. S. Plummer, M.R.C.P., Kliniek Prof. Snapper, Wilhelmina Gasthuis, Amsterdam, Holland.

E. R. Boland, M.R.C.P., 46, Queen Anne Street, W.1, *and* 41, Grove End Road, N.W.8. *Maida Vale* 7033.

EDS. { E. S.
M. McA.

GUY'S HOSPITAL GAZETTE

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PASSIM

LIKE Nature herself, the Hospital realises that one of the essentials of its vitality should be a capacity for constant change, an ability to cast off, to absorb, and, wherever possible, to spread and grow still further afield. But, unlike Nature, it insists that what it does should be done, not in a quiet, secretive, almost invisible manner, but in a way that will forcibly draw attention to its activities and proclaim its youthful spirit.

And so it was only to be expected that the roof of the new Out-Patients would not for long be left unoccupied, or that we should be left unaware that building was in progress thereon. It could not be left as a quiet spot for those who liked to retire from the hubbub and find there a bed which, however uncomfortable, was at any rate always a breezy one, or for those who would steal up now and then to enjoy a view of London at work beneath them. Nor could we ever believe the rumour that the place was to be reserved for sun-bathers. Such a flat roof could hardly ever avoid being built on, and, as everyone knows who has been in Out-Patients more than once, that has been going on steadily and noisily for the last few months. It has had a most ostentatious beginning, and one that even the Pre-Clinicals will find it hard to live up to. Unfortunately, as would happen, the B.B.C. (Bermondsey Borough Council) decided to wield their pick-axes, electric drills, and such-like terrors on their roads about the same time as the Guy's workmen were busy, and, with the constant rivalry between the two, the Out-Patients has been no place recently for a little quiet percussion. Luckily the strain fell most on the Department most able to bear it—the Oto-Rhino-Laryngological Clinic.

At last the result of all this labour is almost complete. The Pre-Clinicals have now been provided with a room entirely to themselves and fitted for all their needs—spacious, airy, and with quite the latest thing in windows and proper ventilation. Nor have the wants of their patients been neglected. They have a little ante-room adjoining to discuss their aspect of disease. The lift makes their path to examination a much easier one than the Medical School steps, which must have been a sore test for the puffing cardiacs, the blue emphysematoids and the pulsating aneurisms.

Now that the Committee Room will soon be abandoned, the views from the Park will be a little the poorer. It was always a fine sight to see some poor fellow bending down to one of his colleagues, as he thumped, listened, and thumped again on the back of the chest, and made—oh—such a thorough examination! What matter if the percussion blow seemed a little heavy and awkward; it was at any rate done according to a system and a regular method. Would that we could still remember the wealth of information so easily learnt in those days!

WHAT a curious change of atmosphere pervades the wards at this time of the year, with Christmas only a month to go. The planning and arranging of a few weeks must begin to take shape against the close reality. Everyone and everything seems on a different footing. No longer in the quiet afternoons may you expect to find the Sisters secluded in their rooms; much more likely to see them at the end of the ward busy at the table with their scissors, wire and stickfast in active collaboration with the junior pro. The gauze rolls are put aside, and roll upon roll of crinkly paper is brought forward to be turned, by a few deft strokes, into a bunch of artificial flowers. The patient with a decorative turn of mind becomes almost a treasure.

HOW necessary it becomes to give the children the benefit of a long convalescence; how important not to neglect the trivial ailments, but rather to watch them carefully!

Even the dresser who rarely turns up to do his dressings must not be misled if he finds himself becoming surprisingly popular and is led to the ward-table to admire. Let him not be mistaken; he must take off his coat this time at least and lend a hand.

The College, too, will know all about it. The "Niggers" have already started practising, and the late risers must condone the cacophony of the baths and quietly hope that merely the constant repetition of the Residents' repertoire may one day produce a more melodious result.

While we are on this subject we would like to remind you that Sister Out-Patients is appealing for toys and dolls for the Children's Christmas Tree, and that anything in this line would be very acceptable to her.

How pleasant it is in these dull November days to see at least one bright spot within the Hospital walls. We refer to the cleaning and painting which the stairs and pillars of the Medical Block have recently undergone. A great change has, indeed, been effected, and not, if we may say so, before it was sadly needed.

But not only to those who work in the Hospital has this renovation brought pleasure, but also to those patients who spend so much of their time sheltered by the stairs, where they smoke and while away the hours with cards.

This change, however, has not been wrought without danger and discomfort to those who frequent the building. Previously, having passed the barrage beneath the trees in the Park one sighed with relief on reaching the Medical Block in safety, but during the past few days this has, indeed, been a false security, for having got thus far one was immediately subjected to a second barrage from the painters' activities on the ceiling. However, all this is a thing of the past, and the Medical Block has now regained something of its pristine glory.

THE attention of our readers is drawn to the performance of "Baa, Baa, Black Sheep," which is being produced by the Wimps Amateur Dramatic Society on December 13th and 14th in aid of Guy's Hospital, which, it is hoped, will be well supported.

TICKETS for the international matches at Twickenham—*v.* Wales, January 21st; *v.* Ireland, February 11th—may be applied for in writing to Mr. J. E. Winston, The Medical School Office.

Applications must be in by December 2nd, and a cheque for the full amount must be sent with the application. Stand, 10*s.*; ring-side, 6*s.*; players' ring-side, 5*s.*

MESSRS. ASH & CO. have again prepared many attractive Christmas Cards, the proceeds from the sale of which will be devoted to the Hospital funds. These cards may be obtained in the Wills Library, the Counting House, the Matron's Office, or the Hospital Shop.

Obituaries

LAWRIE HUGH McGAVIN, C.B.E., F.R.C.S.Eng.

WE regret to announce the death of Mr. Lawrie McGavin, which occurred on October 31st at Folkestone, in his sixty-fourth year.

Lawrie Hugh McGavin was born in 1868, the son of Mr. John McGavin, of Calcutta. He was educated at Fettes College and Sandhurst, his original intention being to join the army. But in 1893 he entered Guy's Hospital as a student, obtained the English double qualification in 1898, and, after filling the usual resident appointments, became F.R.C.S. Eng. in 1890. At Guy's he held the post of surgical registrar, and later became surgeon to the Women's Hospital, Soho, and the North-West London Hospital. At the time of his death he was consulting surgeon to the Women's Hospital and the Dreadnought Hospital, Greenwich. During the war he held a number of hospital appointments, being surgeon to King George's Hospital, the Endsleigh Hospital for Officers, and the Michie Red Cross Hospital, while he was also a member of the final appeal board of medical assessors. For these services he was created C.B.E.

Mr. McGavin married in 1892 Edith Mary, daughter of the late Horatio Beauchamp, of Melbourne.

GEOFFREY CHARLES POST

IT is with great sorrow that we announce the death of Geoffrey Charles Post, in his 24th year, at Hastings on Sunday, November 13th. Post entered the hospital in October, 1926, and passed the Second M.B. in 1929. He should have qualified in October had he not fallen ill.

He pricked his finger while doing a ward dressing and rapidly became seriously ill with

streptococcal septicæmia. His condition from the onset was grave in the extreme, and was a constant source of anxiety to those in whose care he was.

For four and a half months, however, he lay ill, but at last appeared to be improving, so that it was decided to move him to Hastings. Not long after his arrival there, however, he became worse and died.

Post was well known and extremely well liked, both by his contemporaries and by the patients. His quiet and friendly attitude, his conscientious devotion to his work, and, above all, his willingness to help at all times rendered him peculiarly suited for the medical profession. The writer well remembers a walk in the Ashdown Forest with him one day and his remarking that he desired above all things skill in the treatment and handling of men rather than academic knowledge of medical subjects. In this he certainly succeeded, for the patient from whom Post acquired his infection, together with the others whom he was dressing, were rather intolerant of treatment by his deputies and constantly asked for him.

Post had many activities, of which he talked little; he enjoyed music and played it well, but this pleasure he had curtailed latterly owing to his professional work. One cannot help regretting that he had temporarily abandoned such activities as fencing, which he enjoyed so much and which he had intended to resume again after his examinations were over.

We should like to offer our most sincere sympathies to his family and to those who tended him in his last illness, in whom he had stimulated a very real affection.

Cocaine

By Nathan Mutch, Esq., M.D., F.R.C.P.

COCAINE and coca, from which the alkaloid is derived, are drugs of addiction. The former is the plaything of Mont Parnasse and the underworld of large cities, the latter an important staple stimulant of the native classes of South America. In England the habitué rarely confesses his drug in the consulting-room, because he and the illicit trader from whom he obtains supplies come under the heavy shadow of the criminal law. In the later parts of this article, however, I hope to show that, in spite of many assertions which have appeared to the contrary, the practice was for many years rife in London in the post-war period. It would appear to have been suppressed later by the increased penalties imposed in 1924 and by the determined campaign carried out by Scotland Yard against the night clubs of Soho. In recent months new smuggling activities have been discovered, but details of the means of distribution of cocaine to addicts have not yet come to light. At least they have not been made public. It would seem opportune, therefore, to review the known facts concerning the drug and to study the distribution scheme in vogue ten years ago.

COCA

Cocaine is obtained from the leaves of the coca plant, a small shrub quite distinct from the cocoa or chocolate tree, which has grown in a wild state for a thousand years at least in Bolivia and in Peru on the western slopes of the Andes.

As long ago as the 12th century it was cultivated by the Incas, for the exclusive use of the priesthood and those of royal blood, and the occasional present of a basket of dried coca leaves to a member of the lesser nobility was a mark of special favour.

As the Incas extended their dominion northwards along the cordilleras of the Andes they acquired lands more suited to extended culture of the plant, so that it came more and more into general use, until in 1532 Pizarro, landing with his army to begin the conquest of Peru, found the natives indulging almost universally in the habit of coca chewing.

Nowadays the area of cultivation has spread eastwards over the Andes into some parts of the Amazon country in Brazil and northwards past the Isthmus into Mexico. Seeds have been exported, and much of the coca of European commerce now comes from plantations in the East Indies and Ceylon.

The method of taking coca has not changed greatly with the passage of time. The dried leaves are mixed with a plant ash or slaked lime and worked into a ball which is first chewed and then held against the inside of the cheek after the fashion of those who chew tobacco. The well-sucked residue is eventually spat out. This is the practice in South America to-day, just as it was before the Spanish conquest.

The custom shows no signs of dying out, and, as the centuries go by, the chroniclers give an ever increasing estimate of the amount of coca leaves used in the countries of the Andes. The figures are stated sometimes in terms of money's worth and sometimes in weight, so that fluctuations in market value and in rates of exchange have made strict comparison impossible. In the middle of the 16th century, for instance, Pedro de Leon writes:—

" So highly is it valued that no plant in the world except spice could equal it, for at that time most of the plantations about Cuzco, La Paz and La Plata yielded, some 80, some 60 and some 40 thousand pieces of eight a year and all in coca, and whoever had lands assigned him first reckoned how many baskets of coca they yielded and so they fell to planting, that it is now much fallen in price."

In the second half of the 19th century the eight million inhabitants of native origin who lived in the Andes are said to have consumed 30 million pounds of coca annually, *i.e.*, $3\frac{1}{2}$ pounds for each person. By 1918 the estimate had reached 100 million pounds of coca, apart from any which was exported to North America or Europe.

It is quite clear that the habit must exercise some overpowering fascination more enduring than political power, civilisation, language, or religion. The religion of the Incas, with all its complex rites, has passed; their alphabet is unknown to archeologists; most of their writings are lost; but their descendants still cling to coca chewing and probably will continue to do so as long as their race survives.

The Indians had long ago explored the practical possibilities of the drug in relation to their own habits and environment. None but the hardiest race could have prospered in the high Andes. Even to-day the European traveller in these regions, when assisted in every way that money can command, must be accustomed to arduous exertion and inured to discomfort and privation. Yet the Indians in mid-winter would stand knee-deep in water carrying out works of irrigation, or remain day and night on high, bleak, gale-swept plateaux herding their alpacas. In later years they were compelled to labour in the Spaniards' mines, where the strain and hostile climate were too severe for Europeans. Ease from hardship could not be procured by narcotics, and the sleep of opium would have ended in death. A fierce stimulant was needed, one which would give the Indian power over his environment. Coca supplied the need, and under these conditions the coca habit had its birth.

For hundreds of years travellers have testified how coca frees the Andean Indian from his bonds. The pangs of hunger are postponed. Fatigue is delayed. The discomforts of icy cold are no longer felt, the distress of physical exertion at great heights is prevented, and even the desire for sleep is less insistent. It is recorded that Indians supplied with coca will follow a mounted man on foot and carry heavy burdens through the forests of Peru, covering 50 miles a day without food, and will accept the task cheerfully. One explorer, Tschudi, put a native miner of 62 to work digging hard without food for five days and nights. The man slept two hours each night and every three hours stopped to chew $\frac{1}{2}$ oz. of coca leaves. In the next two days he covered 60 miles before breaking his fast, and then declared himself ready to go through the test again. The priest of the district said that he had never known the man to be ill in spite of heavy labour, hardships, scarce food and free indulgence in coca. This is not an isolated instance of a freak performance. The literature of Andean exploration contains numerous descriptions of similar achievements. It is recorded that during the Revolutionary Wars which destroyed the power of old Spain in the Spanish American States, native Peruvian troops, poorly clothed and ill-fed, were able to make long marches over the mountains without food or sleep, and merely resting from time to time to chew coca.

Heavy labour sustained by coca does not end in complete collapse as might have been expected, but when the work has been completed the natives eat greedily and, after a long natural sleep, are quite ready to work again.

The Indian chews coca habitually even when not engaged in heavy tasks. One German writer complains that " even those who use it to no great excess must stop their work several times a day to chew their quid contemplatively, and are much displeased if disturbed in their placid enjoyment."

Europeans also are affected by the drug. One writer says that, sustained in this way, he could " ascend the passes of the Andes with ease and comfort." Another found that coca prevented the difficulty in breathing which would otherwise have been felt in ascending the Andes rapidly; at 14,000 feet he could climb and hunt with its help as easily as at sea-level.

Amongst more modern observers, Sir Robert Christison carried out endurance tests in the Scotch mountains, and quite satisfied himself that coca would not only delay fatigue or abolish it after it had been established, but would also postpone hunger. Vigorous appetite and healthy digestion returned in the evening, and he slept refreshingly at night. He made a number of experiments of this kind on himself and on students.

Returning for a moment to ancient times, many interesting details have been recorded by Garcilasso de la Vega, the son of one of Pizarro's captains by a niece of one of the last of the Incas. For example, the sacrificing priest, he tells us, always held coca in his mouth when consulting the Oracle. Apart from any religious symbolism which this custom might imply it occurs to the modern cynic that the habit was a useful one, for the priest's mental faculties being stimulated by cocaine, his wits would suggest oracular utterances of the greatest wisdom.

It was also thought that no business transaction could prosper without the benediction of coca. Perhaps a shrewder bargain could be made by brains brightened by coca.

Even in recent years the superstition persisted amongst the miners of Cerro de Pasco that veins of ore could be softened if well-chewed quids were spat upon them. This is supposed by many to be an act full of heathen mysticism, but its long survival is probably due to the stimulant action of the coca on the men.

No definite ill effects have been traced to the habit of coca-chewing, and even to-day the Indian of the Andes is a hardy creature. His stature and longevity are not great, but whether this tendency to die in late middle life is the outcome of race and climate or of his coca-chewing has never been determined. He certainly does not show any of the common disabilities of the cocaine-takers of European extraction. If, however, he abandons his coca and takes his meals regularly instead of adopting the system of orgies of eating alternating with long fasts, he loses his special physical powers and sinks to the ordinary European standards.

No large importation of coca leaves has been undertaken in this country, formerly because the leaves deteriorated in transit, and nowadays because the evils which result from the extracted alkaloid cocaine have begun to terrify our legislators. It seems, therefore, most improbable that coca will ever come into general use in competition with the safer but less effective caffeine stimulants such as tea, coffee and maté.

COCAINE

In recent years the medical profession has used cocaine almost exclusively for the production of local anæsthesia. The first coca leaves came to Europe in 1750, and yet no mention is made of their local anæsthetic properties when suitably treated until 1862. More than 100 years were required for the appreciation of this simple fact. About the same time the active constituent cocaine was isolated and the possibility of producing local anæsthesia by injection was demonstrated.

It took another 20 years for this knowledge to filter through from the laboratory into the realm of practical medicine, and the drug was not used clinically until 1884, when its praises were sung by a Viennese oculist Koller, and cocaine entered upon the heyday of its legitimate prosperity. The Government began to encourage coca cultivation in Ceylon almost at once. The drug was manufactured on a large scale and soon became cheap and easy to obtain.

The secret of the power of cocaine over the drug addict lies in its stimulant action on the brain. Fatigue, boredom and depression are banished. Reaction time is diminished and ideas associated together with greater facility. There is a very real increase in intellectual power and a comfortable feeling of dominance and self-possession. With increasing dosage it is depressant or narcotic, and within a certain range its action becomes differential in effect. I mean that the highest centres may be depressed whilst the lower ones are still stimulated. For this reason it acts as an aphrodisiac.

The effects of cocaine taken as a snuff or injected is almost instantaneous. In comparison with the effects obtained by chewing coca leaves it is volcanic. The Andean takes his coca as we take tobacco and tea, and rarely, if ever, suffers from any definite ill-effects. It is quite otherwise with those who take the pure alkaloid. At first it seemed to offer laughter, vivacity and joy to those who greet life eagerly but are soon fatigued. It was soon found, however, that by repeated use cocaine undermines the health and reduces the taker to a most miserable condition. Thomas Burke, speaking with a certain dramatic exaggeration of one of the victims of cocaine, says :—

"He hated life and feared death. He was in constant terror of unseen visitations. He got thinner and thinner; he withered; and his clothes seemed to hide only bones. He developed twitches in his limbs, his head and his features. His mouth sagged open. Only with a serious effort could he keep his lips closed. He dribbled. He would laugh long, high peals of laughter at nothing, and then would collapse in frantic tears and ugly fits of hysteria. He could not raise a fork to his mouth. He could not control the normal functions of the body. He could not eat. He could not even swallow drink.

"Nothing could lift the cloud of misery that pressed upon his body and mind, or relieve those sweats of frenzy or that maddening dryness of the skin. He had tried to fight it, but cocaine will not let you try.

"I last saw him padding furiously round and round a square off Oxford Street. His boots were broken; his clothes hung upon his skeleton frame. His head sagged forward, and his hollow eyes shot right and left with the fear of the hunted. His knees knocked and his arms jerked. He was cut off from humanity, and could only wander and wander.

"It was there that he was found by the police and taken to a place of restraint. He never came out."

DRUG TRAFFIC

It is well known that cocainism is rife in America and on the Continent. An analysis of cases published between 1920 and 1923 reveals the state of affairs in London. The search has

been very incomplete, so that the figures should be regarded as understatements of the case. Apart from instances of attempted smuggling, 55 individuals were convicted in London for dealing unlawfully in cocaine as panders, not as victims. Greeks, Maltese, Russian Jews, Belgians, coloured folk and Chinese made up a quarter of them, and amongst the good British names of the rest were many dubious ones such as Haulibach and Weinglass. From these traffickers the police took 238 oz. of cocaine, representing quite half a million doses, upon which a profit of £100,000 would have been made if it had been sold at the current retail prices for such illicit commodity.

Some of the prisoners appeared to follow this trade as a whole-time pursuit, but most of them professed other occupations as well. Many were owners of or employees in restaurants.

Small shop-keepers, especially tailors, are prominent on the list. The lower grades of the theatrical profession, pugilists, bookmakers and horse dealers are also represented, as well as seamen and dock labourers.

It is interesting to try to trace the route taken at that time by this unlawful traffic in England. Little or no cocaine is manufactured in this country, so that smuggling is a first essential step in the business. We can follow the Port of London Excise men as they entered the *Fushimi Maru* lying in the Albert Dock and found 15,000 doses concealed under a spare berth by two Japanese stewards; or we can watch them detecting £410 worth of cocaine hidden in bottles high up amongst pipes and machinery by two Italian engineers; or exposing the 1,000 doses which the French cook Jinarole concealed in the galley of S.S. *Monnette.*

Once past the Customs barrier distribution commenced. May Roberts was observed racing down East India Dock Road with a consignment of cocaine in her limousine, but was eventually caught by the police. Cocaine in bulk has been seized nearby in West Ham. Hauls have been made in Bloomsbury, Marylebone and Wandsworth. The cocaine was then diluted by the addition of such adulterants as boric acid, aspirin, sodium bicarbonate or menthol, and parcelled out into small packets which represent the unit of the retail trade. These were sold at various addresses and by pedlars in the streets. Jane Pye sold it at her haberdasher's shop in Upper Rathbone Place. It could be bought freely at a café, 16, Church Street, Soho. A tobacco shop in High Street, Poplar, a Chinese opium den at 70, Pennyfields, Limehouse, and a private house in Great Woodstock Street, W., have all been used by their respective occupants for the sale of packets of cocaine. The places were scattered about in many localities, and each had its own private clientele. When, however, attention is turned to the pedlars who sold their goods at street corners, Tube stations, public-house lounges and similar places, it is very significant that almost all the arrests were made in or near Soho. We find William Weltman selling a packet to a woman in Shaftesbury Avenue and Horace Kingley selling one in Wardour Street. Sales have been witnessed at Piccadilly Circus, just by the Pavilion in Coventry Street, Leicester Square, Dean Street, Jermyn Street, Wardour Street, Lisle Street, Greek Street, Shaftesbury Avenue, Charing Cross Road and by the Edith Cavell Monument.

This district would appear to be the only great public retail market which has so far been discovered in London, and it is instructive to note that most of the buyers were women.

In the face of these facts it is inconceivable that anyone could deny the existence of cocainism on a dangerous scale in London.

PROHIBITION

The earliest attempts at prohibition began in South America as early as 1567, when the Bishops condemned the practice of coca-chewing as the survival of a heathen rite and forbade the people to grow the plant. The mine owners and planters found that Indians from the High Andes forced to labour on the warm moist lower slopes quickly succumbed to the climate if deprived of coca, and in their own commercial interests they opposed the Clergy with such energy and success that the cultivation of coca not only proceeded, but increased. This has been the fate of all modern attempts of a similar kind. The United States of America brought the Harrison Narcotic Law into being in 1914, and it appeared to receive support from the public and the doctors. Yet in 1919 the statisticians of the Treasury Department estimated that over 3 tons of cocaine entered the country in excess of all conceivable medical requirements and in addition to any which was smuggled.

During 1922 the imports of the drug fell enormously, but the Federal Office in New York estimated that smuggling had increased fourfold during the same year.

Our English attempt has been much less energetic, but, in view of American failure, it is useless to continue along the same ineffective lines.

It seems folly to forbid the importation of cocaine unless the Customs Authorities can enforce the law, and a little reflection guided by experience shows that this is impossible. One hundred doses of cocaine could easily be concealed in a hollow button or in a few artificial teeth, or dissolved and

impregnated into the lining of one's coat. They cost a shilling and can be sold for £25, so that the trouble would be amply repaid.

The manufacturers' price for cocaine is 16*s*. an ounce. The drug is retailed by chemists at 25*s*. The price of the packets peddled in Soho is usually 5*s*. In 1920 they sold at 5*s*., in 1921 at 5*s*., in 1922 at 4*s*. or 3*s*. 4*d*., and in 1923 they rose to 5*s*. once more. About 2,500 packets can be made from an ounce of cocaine, and the yield from their sale would be over £600, representing the amazing profit of 60,000 per cent., far beyond the wildest dreams of the old war profiteers.

Until 1924 the punishment for the offence was a paltry fine of £200 and/or six months' imprisonment, which could not be considered as a deterrent worthy of any consideration. This was the fine imposed on H. Humphrey, who had just completed a cocaine deal upon which he made over £7,000 profit. Several men in my list had been convicted twice during the three years under review. If deterrent penalties are employed they must be ones which will appeal to the offenders. The small man must be imprisoned for many years, the big man not only imprisoned but shorn by a commensurate fine.

The results of an ineffective prohibition such as this country employs are disastrous. In the first place it substitutes for the evil effects of the drug on a few individuals a vast illicit trade most prejudicial to public morals. The sin against the individual is then increased a thousandfold. When cocaine could be bought legitimately from the chemist for a fraction of a farthing per dose it was not worth anyone's while to educate the public in the ephemeral delights of its abuse. The unlawful dose at 5*s*. offers every inducement to the criminal class to foster desire and create new habitués from whom they can reap their enormous profits. The number of cocaine takers will undoubtedly increase more rapidly under so-called prohibition than it would have done with unrestricted sales. A malign educational force has been brought into being, similar to the one which exists in China. In that country the traders give away hypodermic syringes gratis with enough morphia to create the craving in the recipients. Once the craving has been established the victim must buy the drug himself. The extent of the traffic seems to be influenced entirely by the demand and not in any way by the countries' laws.

The abolition of cocaine manufacture has been suggested as a remedy for the evil. Substitutes have long been known. The surgeons who operate on throat, nose and eye are now fully provided for, as well as dentists and those who practise infiltration anæsthesia, so that the moment would seem propitious for shutting down the cocaine factories.

But is the project feasible? If the vested interests of the Germans, Dutch and Swiss who make most of the world's supply could be met the manufacture could be brought to a standstill, but not for long. Secret plants are discovered from time to time. One syndicate of illicit cocaine merchants had its own chemical plant, and the police captured plans for a smuggling ship which was to be disguised as a private yacht and the details of a scheme for the exploitation of the British market. It is impossible to patrol more than the smallest fraction of the earth's surface, and if the factories at Darmstadt close others will arise in more remote parts of the globe, and the whole traffic will become clandestine from the manufacturing chemist downwards to the victims of the drug.

The project of stopping the production of coca leaves is even more fantastic. The shrub grows under many flags, and in its native land flourishes freely in the wild state as an escape from old plantations. Even at Kew we have a good-sized specimen which grows easily and well. The most elementary grasp of the geography of the Andes makes it apparent that coca could not be eradicated from Bolivia and Peru.

Moreover the eastern slopes of the Andes pass downwards into the virgin forests of the Amazon country which cover tens of thousands of square miles between the mountains and the coast of Brazil. This tract of land which abuts on and merges into the natural habitat of the coca plant has so far baffled all attempts at exploration, and we know even less about it than we do about the lands which lie around the Poles. It would be easier to stamp out a nation than to stop the extended growth of coca.

Before any further attempts are made to cope with the menace of cocaine, three facts should be accepted with all frankness, namely: that coca will always be grown, that the secret manufacture of cocaine cannot be prevented, and that it is impossible to raise a Customs barrier against the drug.

Notice

Cricket Blues

AT a meeting of the Cricket Blues Committee on 21st November the following awards were made:—

Full Blues.—G. V. Doherty, H. D. Bevan, P. C. Alexander.

Half Blues.—G. C. Wright, A. D. Willis, N. E. Gillham, G. M. A. Brown, R. L. Evans, R. M. De Gregory, T. S. Lowry.

The Seven Ages of Nursing

(With apologies for using the same excerpt, with yet further alterations.)

Jacques.—The Nurses' Home's a cage,
And all the nurses in it merely birds ;
They have their late leave and their long week-ends,
And one nurse comes in late so many times,
Her course is seven years. At first the lamb,
Squeaking and chattering in the tutor's class,
And then the timorous junior, with her bed-pan
And shining morning face, running like hare
'Twixt bathroom and the sluice. And then the senior,
Adding in haste the usual twenty to
The respiration rate. Then the head nurse,
Full of her new importance in the ward,
With questioning eyebrows raised in mute appeal,
Holding her pen in readiness above
The sanitary block. And then the staff nurse
In broad black band (to keep the figure in),
With head held high, half-strangled in her strings,
Full of a great responsibility ;
And so she plies her art. The next stage shifts
Into sedate, splenetic sisterhood,
With carving knife in hand and scales nearby,
Myopic eyes set frowningly upon
The diet sheet. And her once youthful lines,
Craving the ease of apron strings, are trapped
And bottled up in blue. Last scene of all,
That ends this strange eventful nursery,
Is matronship and sovereign power, but—
Sans stripes, *sans* strings, *sans* blue, *sans* everything.

AS YOU LIKE IT.
Act 2, Scene 7.

W. S. N.

Infection of the Antrum of Highmore of Dental Origin

A Paper read before the Dental Society, Guy's Hospital, by R. A. Johnson, Esq.

MR. CHAIRMAN and GENTLEMEN,—The subject of infection of the Antrum of Highmore, or maxillary sinus, is really in the realm of the rhinologist, but as quite a proportion of cases, given as 30 per cent. as a maximum by some observers, are of dental origin, it is of importance that the dental surgeon should at least have a sound knowledge of the dental causes and their treatment.

First of all let us consider briefly the development of the antrum, and then its anatomy, more especially in regard to its relationship to the maxillary teeth. At birth the antrum is present as a shallow depression situated in the lateral nasal wall, between the floor of the orbit and the alveolar portion of the maxilla, and above the germ of the first deciduous molar tooth. The infra-orbital nerve lies in an open groove in the floor of the orbit. By the time teething has commenced—that is, the time of eruption of the first deciduous incisors—the size of the antrum has increased but little, and, according to one observer, would scarcely accommodate an orange pip. By the end of the first year the antrum extends outwards to the anterior end of the zygomatico-maxillary suture, and has increased in height, thus separating the orbital and alveolar processes. By the end of the second year it has extended outwards to the infra-orbital foramen, and above the tooth germ of the first permanent molar tooth. From the third to the sixth year the antrum gradually increases in size, and at the latter age extends behind the germ of the second upper molar tooth. From this point the growth of the antrum is intimately connected with the eruption of the upper molar teeth. The expansion of the antrum, although it is developed as a diverticulum of the respiratory tract, is due only to a very slight extent, if at all, to any respiratory function. The expansion is due to bone growth in the strictest sense of the word—osteoclastic absorption on its outer surface and osteoblastic deposition beneath the periosteum covering the outer surface of the jaw. This growth, occurring as it does in a circular plane, causes the eruption in their correct alignment of the second and third upper molar teeth. The antrum is completely developed by the age of 25, and has a capacity of 2 fluid ounces.

The actual cavity in the adult is pyramidal in shape, the base of the pyramid being the lateral nasal wall, and the apex lies under the root of the zygomatic process. The four walls are anterior, posterior, superior and inferior, but the only one about which we need speak is the inferior, formed by the alveolar process of the maxilla, and the base, which is the lateral nasal wall. This forms the side wall of the middle and inferior meati of the nose, and the upper part is largely membranous. The natural opening into the nose from the antrum—the ostium—is placed high up in the nasal wall, on an average 1.25 cm. above the floor of the antrum.

The inferior wall is, as we have said, the alveolar process of the maxilla, and this is normally

convex in shape, the lowest part of the convexity being above the first upper molar tooth. It is on the same level as the floor of the nose, and is separated from the apices of the teeth by two thin layers of compact bone, between which is a varying amount of cancellous tissue. The nearness of relationship of the apices of the teeth to the floor of the antrum increases from before backwards, from the first upper premolar to the third molar. This can be more fully understood when one realises that the eruption of the molar teeth is governed by the growth of the antrum. The relationship depends greatly also upon the size of the antrum. If small, a fairly large amount of bone intervenes between the floor and the apices of the teeth, in which case risk of infection of dental origin is slight. If, on the other hand, it be large, it may send down a prolongation into the alveolar bone, the sinus alveolaris, and the amount of bone present may be negligible, or even absent altogether, in which case the apices are covered by the lining membrane of the antrum. There may also be a prolongation palatally, the sinus palatinus bringing it into relationship with the palate.

The symptoms of suppuration of the antrum differ as to whether the inflammation be acute or chronic, and it will, I think, be better to differentiate between the two. First let us take the signs and symptoms of acute maxillary antritis. The local symptoms will be generally a feeling of congestion accompanied by pain on the side affected, which is usually referred by the patient to the antrum. Pain is often severe, and swelling of the cheek on the affected side noticeable. It may be accentuated by pressure over the canine fossæ, the cheek, or by pressure of the bite on the upper teeth, and this will be especially noticeable if the case be of dental origin, in which case pain may be felt and referred to one tooth. A discharge of pus into the nose from the opening of the antrum into the middle meatus may be present, but, as the opening is high up, may not. In this case, laying the head on the opposite side to that affected may cause a welling of pus into the nose. An examination of the nose by means of a speculum will usually show the presence of pus in the middle meatus coming from the ostium. The general symptoms may be severe, with acute pyrexia rising to 102°-104°, and the attendant feeling of malaise.

In chronic suppuration of the antrum, which frequently arises from neglect or failure to diagnose the acute condition, the symptoms are somewhat similar to those of acute infection, but for the fact that they are not, as a general rule, so severe. A unilateral nasal discharge is present in contradistinction to the bilateral discharge which is present in chronic inflammation of the nasal mucous membrane. It must be borne in mind, however, that a unilateral nasal discharge does not definitely indicate infection of the antrum, as other air sinuses may be infected. In the case of the antrum, this discharge is caused by an overflow of pus through the ostium, and it may cease for a time owing to obstruction of this opening. After a time, subsequent to an attack of pain caused by increased pressure, the retained fluid will break through, and the condition will be temporarily relieved. Occasionally, severe infra-orbital neuralgia may be the only symptom of this condition.

It is very often extremely difficult to diagnose with certainty the presence of pus in the antrum, and it will be as well to run over briefly the methods used in this examination. First of all, examine the nose with a nasal speculum and try to see any evidence of pus coming from the ostium in the middle meatus. The next method commonly used is transillumination by means of a powerful electric lamp. The lamp is placed in the mouth—the examination taking place in a darkened room—and the appearance of the face noted. If both antra are seen to be clear, as shown by a uniform pinkness of the cheeks, and a line beneath each orbit, there is generally no pus present. If one side appears dark it cannot be said to be a positive diagnosis of the presence of pus, as it always is possible for the darkness to be due to a neoplasm in the antrum. This test is also negatived if both antra be dark.

X-ray examination is also valuable in diagnosis, the method being to take a skiagraph of the skull in such a way as to show the air sinuses in their bilateral symmetry, and from variations in their opacity, pathological conditions may be deduced. Empyema of the air cells on one side will show a marked increase in opacity, and some blurring of definition of outline. In the early stages of new growths opacity is produced, and this may be mistaken for an inflammatory lesion, but in the later stages the growth is seen to extend beyond the margins of the sinus in question. It will thus be seen that X-rays are not an infallible test, but occasionally it may be shown that the antrum contains pus by taking skiagraphs of the head in various positions, and seeing if the level of the opacity alters—a process known as levelling. If the infection be of dental origin, an X-ray will in all probability show the offending tooth. When all the symptoms of suppuration of the antrum are present, and diagnosis has been confirmed as far as possible by means of transillumination and X-rays, the clinching factor is the aspiration of a

small quantity of fluid from the antrum by means of a small trocar inserted into the antrum through the inferior meatus.

The chief dental causes of empyema of the antrum may be classified as either acute or chronic inflammatory causes, and traumatic causes. I think it would be the easiest way to tabulate these causes, and then run briefly over the symptoms preceding empyema, and correlate the resulting inflammation with changes in the dental condition wherever possible.

The acute inflammatory changes which occur in or around the roots of maxillary tooth which occur and may give rise to suppuration of the antrum are—(1) Acute alveolar abscess, (2) Diffuse osteitis of the alveolar process, (3) Acute periostitis.

The chronic changes are—(1) Chronic inflammation of the periodontal membrane, (2) Infection by way of the root canal of a dead tooth, (3) Pyorrhea alveolaris.

Suppuration of traumatic origin may be due to either (*a*) pushing of a root into the antrum during extraction, (*b*) opening the antrum during extraction, and subsequent infection from the mouth.

These, I think, cover the chief dental causes, so now to examine each separately. Firstly, acute alveolar abscess. According to one observer, this condition develops as a result of periodontitis secondary to inflammation of the pulp of a carious tooth, but acute periodontitis may arise from an injury to the tooth, which may lead to death of the pulp. Thus careless application of a rubber dam-clamp or over-separation of teeth may lead to the death of the pulp following an acute local periodontitis, and thence to an alveolar abscess. The symptoms of acute alveolar abscess are too well known to need discussion here, but it must be remembered that pain in this condition is due to the tension of the inflammatory exudate. Pus tracks to the surface along the line of least resistance, and in the majority of cases bursts through the thinner outer alveolar plate and forms a subperiosteal abscess. In the maxilla, however, if the antrum be large, there will be less resistance for the pus in the direction of the sinus, and in these cases, where sudden relief of pain occurs without the formation of a sub-periosteal abscess, infection of the antrum should always be suspected, and steps taken immediately to ascertain if this has actually happened.

Diffuse osteitis of the alveolar process may arise either as a sequel to, or from the same infection as, an acute alveolar abscess, and when it occurs it invariably leads to necrosis, and in the maxilla may lead to suppuration of the antrum. The persistence and spread of the symptoms of alveolar abscess is an indication of the serious condition of osteitis and a warning of possible necrosis.

The next cause to consider is acute periostitis. This condition usually arises from extra dental causes, and is more common in the mandible than the maxilla, but it may be caused by a neglected alveolar abscess or an unerupted wisdom tooth. There is a general uneasiness of the teeth, and pressure may cause acute pain, which is often worse at night. Redness and swelling of the face are present, and there are general constitutional disturbances. According to the type of inflammation and its cause, the sequelæ differ, and in cases of dental origin acute suppuration and necrosis are uncommon, but if necrosis does occur in the maxilla it may lead to suppuration of the antrum.

Chronic inflammatory changes in the periodontal membrane may lead to chronic empyema of the antrum. The periodontitis may be either productive or rarefying, but when the injury persists, or an infective type of inflammation ensues, a condition known as chronic suppurative periodontitis results, and this is the type which may affect the antrum. The infection usually reaches the membrane by way of the apical foramen, and pus is slowly formed by the disintegration of the tissues. This slowly tracks in the direction of least resistance, with the result that, as a rule, a sinus is found opening on to the gum through the outer alveolar plate. However, as is the case with an acute alveolar abscess, if the distance between the apices of the maxillary teeth and the floor of the antrum be small, it is quite conceivable that the sinus will discharge into the antrum instead of on to the gum.

When the root canal of a dead tooth is filled it is quite likely that infection will be carried up the canal and pushed through the apical foramen, causing irritation in the region of the apex of the tooth and giving rise to a granuloma which is the precursor of a dental cyst. The tooth is filled, and it may not be suspected that suppuration can be taking place at the root of the tooth under an apparently harmless filling, as generally in the early stages of a dental cyst no pain is present. The granuloma breaks down in the centre and becomes a true cyst, which gradually grows and, by slow absorption of bone, comes into close relationship with the antrum, which it quite possibly may infect. Usually a granuloma comes away attached to the root of an infected tooth, but it is quite possible that it may be left and give rise to a dental cyst at some later date.

That pyorrhœa alveolaris may lead to suppuration of the antrum is now an established fact, according to one observer. Infection may spread

by direct continuity of tissue, or by way of the lymphatic drainage or venous return.

The traumatic origins of inflammation of the antrum are more easily understood. Even the best operators occasionally force the root of a tooth into the antrum, however much care is taken. Symptoms are a bubbling of blood coming from the socket of the extracted tooth, followed by a bleeding from the nose, and suppuration of the antrum may ensue from either immediate infection or subsequent infection from the mouth.

The differential diagnosis of dental and extra-dental causes should not present grave difficulties, as if the case be one of dental origin, on examination of the mouth it will generally be obvious which is the offending tooth. However, if it be due to a dental cyst which has developed after the extraction of a carious tooth, it will not be so easy, but skiagraphs, together with the report of an expert radiologist, will solve the difficulty. In normal circumstances the antrum and accessory sinuses are sterile, but in inflammations of dental origin the commonest organisms found are the bacillus gangrenæ pulpæ, the bacillus necrodentalis and the bacillus proteus, whilst if the case be of nasal origin, the prevalent types will be pneumococci, staphylococci, streptococci and the micrococcus catarrhalis.

The treatment of empyema of the antrum is divided up according as to whether the inflammation be acute or chronic, and these must be dealt with separately. In acute suppuration the main essential is that quick, free drainage be secured, and it will be the obvious way to drain the antrum through the alveolus, after the offending tooth has been extracted. A free opening must be made, otherwise it will rapidly contract and prevent the insertion of the nozzle of a syringe for the purpose of irrigating the sinus. A solid plug may be inserted, which is removed for irrigation, or a tube through which irrigation may be continued. It is preferable, if possible, to use a solid plug, because a hollow tube would easily become clogged. Having established drainage, the antrum should, for the first three days, be irrigated with half a pint of warm normal saline, or weak antiseptic such as a weak solution of Condy's fluid or a saturated solution of boracic acid, three times a day. When the discharge of pus has diminished, this may be reduced to twice daily, then once, and then on alternate days. After an interval of four or five days, providing no more pus is discharged, the plug should be removed and the sinus irrigated as long as the opening remains patent. The syringing is best carried out by means of a Higginson's enema syringe fitted with a special nozzle. The condition may be cured within a fortnight in tractable cases.

Chronic suppuration of the antrum is not so easy to treat, and is not so certain of success. One must bear in mind that it is quite probable that in cases of long standing there will be definite pathological changes in the mucous lining of the antrum. Drainage must essentially be free, unhindered and spontaneous, but drainage and irrigation alone will occasionally have little effect on this condition. The first essential is the removal of any diseased tooth or teeth and the treatment of any other chronic inflammatory condition existing in the mouth such as pyorrhœa alveolaris, should it be present. Alveolar drainage and irrigation cannot be well carried out indefinitely, and it is better to persuade the patient to submit to a minor operation, when free drainage, which will last, will be obtained. If the mucous membrane lining the antrum be badly affected it is better that it should be curetted away. Two operations are performed, the one establishing free and permanent drainage into the nose, and the other affording a point of entrance to the antrum from which every wall is easily accessible for the curetting away of the mucous membrane lining. The two operations are outside the realm of dental practice, but it is just as well, I think, that one should at least have heard of them. The first, to afford free drainage through the nose, is the removal of the anterior part of the inferior turbinate bone, and the second, known as the Caldwell-Luc operation, through the canine fossa, from inside the mouth. After radical methods such as these, followed by regular irrigation through the nasal opening, the empyema will usually clear up.

Prognosis, in acute cases of dental origin, is good, providing free drainage is made, but in chronic cases one should guard against placing any definite length of treatment. It will all depend upon the amount of infection of the lining membrane, the drainage provided, and the natural resistance of the patient.

This proved a most interesting and instructive paper, but the way in which Mr. Johnson knew his subject forbade of much discussion. Mr. Hooper proposed a vote of thanks to the speaker, and the meeting adjourned in the usual manner.

Guy's Hospital Gazette

The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Correspondence

An Interesting Dentistry Case

To the Editor of the GAZETTE

SIR,—The following case might be of interest to students of dentistry and others.

A patient, male, aged 37, came to me and asked me to repair his dentures. This happened exactly a year ago. He had had all his teeth extracted ten years previously. When I returned his dentures the next day he casually remarked to me that he had most irritating neuralgia all along the right side of his mandible. On enquiry it appeared that he had suffered from it all the ten years his teeth had been out, and also for a year previous to that. At various times he had consulted doctors and dentists about it, and had X-rays taken, but nothing was found, and he had not been relieved of his neuralgia. I persuaded him to have another X-ray taken, but I found no roots or necrotic bone ; and in fact there seemed to me to be nothing wrong. Otherwise he was a perfectly healthy individual, and had been a good sportsman in his day.

The day after I had the X-ray taken he came to me and I told him the result. I asked him if he would let me give him a mandibular injection with novocain. I did so once daily for about a week. I painted the molar and premolar region on the right side of the mandible with a solution of equal parts of aconite, iodine and chloroform. The neuralgia disappeared, and although it is now a year ago, he has never complained of any pain since that day. It was either imaginary neuralgia on the part of the patient, or else the most unorthodox treatment had cured him.

It would be interesting to know what Guy's students of dentistry and teachers there think of it. The patient was an absolute stranger to me, and has since demonstrated his gratitude in no uncertain manner.

Yours, etc.,

M. L. COOPER.

62, Cawood Street,
North End.
Port Elizabeth.

Hospitals and the "Rugger Cup"

To the Editor of the GAZETTE

SIR,—With regard to the reference to the "Rugger Cup" in the last issue of the *Gazette*, I should like to point out that the subject was brought up at the last general meeting of the Club. At the meeting our position was fully stated. The Club has not resigned from the Inter-Hospital Cup Competition. An impartial committee is being formed to inquire into the grievances of ourselves and four other London hospitals. It is impossible to say more than this before learning the result of the inquiry.

Yours, etc.,

P. C. ALEXANDER,
Hon. Sec.

Guy's Hospital,
S.E.1.

Guy's Men and Epsom College

To the Editor of the GAZETTE

SIR,—It is proposed to call a meeting of Guy's men interested in Epsom College on Friday, December 2nd, at 5 p.m., in the Committee Room next to the Medical School Office.

The purpose of the meeting is to promote a closer co-operation between the two schools.

I am also anxious to obtain the names of any old Guy's men who would help in furthering this object, and I should be glad if they would write to me intimating their interest.

Yours, etc.,

ARTHUR W. ORMOND,
Member of Council,
Epsom College.

9, Devonshire Place,
Upper Wimpole Street,
W.1.

Sport

Rugby

Guy's v. Northampton

THE match at Honor Oak Park on Saturday, November 5th, was robbed of some of its attractiveness as several of the visiting team were called on for County games ; Guy's were also without their Captain, T. Morgan, who was injured against Cambridge, Windsor Lewis and W. B. Clegg. However, it was a particularly hard game, fought out at a fast pace, and in the end Guy's proved worthy winners by 2 placed goals

and a try (13 points) to a placed goal and a try (8 points).

During the first half, Guy's established a lead of ten points, and after the change of ends, with the breeze in their favour it looked as though they would have a comfortable victory, but Northampton fought back splendidly and registered two tries in quick succession, which brought them in sight of victory. However, in the last few minutes the Hospital brought off a splendid bout of passing, and Johnson put the issue beyond doubt when he forced his way over for an unconverted try.

In the first few minutes the Guy's line had a narrow escape when W. J. Morgan missed the ball and only a forward pass prevented the visitors from scoring. The Hospital took some time to settle down, and eventually their threes got into action and the ball travelled quickly and accurately to Ashdown, the right wing, who was thrown into touch five yards from the line. Guy's secured the ball from the line-out and it was sent with remarkable rapidity to Alexander, who cut through a narrow gap before sending in Johnson for a try near the posts, which Hogbin converted.

Guy's followed this with a combined rush by the forwards, who forced a five-yards' scrum; the advantage thus gained was nullified when two of the forwards got offside. Very weak tackling by the Hospital enabled Julienne, the left wing, to slip through four or five "would-be" tackles before he was pushed into touch near the line.

Immediately afterwards Guy's were penalised for holding the ball, and Baillon came very near to kicking a goal. Danger again threatened the Guy's line when Giesen missed a pass from Eustace, and the Northampton forwards following up hard were only prevented from scoring by Alexander, who kicked into touch.

Guy's had another spell in the visitors' 25, and eventually Eustace whipped out a clever pass to Giesen, who, with a fine swerve, ran right through Northampton's defence to score behind the posts, for Hogbin to add the goal points.

Near the interval, Northampton had bad luck in not scoring when their right wing had a clear field. Unfortunately, Garratt, when faced by Morgan, gave a forward pass to King, when the latter had nothing to do but to touch down.

The second half was not so interesting, and it was chiefly a battle for supremacy between the forwards who were fighting every inch for the rest of the game.

Northampton started off with a dashing raid, which ended when Guy's were awarded a penalty for offside. Soon after Giesen marked, and Alexander cut through only to be held up by Garrett and Collinson. W. J. Morgan came into prominence by checking a Northampton movement, and a minute later good work by Hogbin nearly led to a try, but Eustace failed to accept a pass at the critical moment. Guy's continued to press, and Alexander all but scored on one occasion when a sudden change came over the game.

Emes, who had played an inspiring game at scrum half for the visitors, slipped away on the blind side and cut through to the Guy's 25 before Johnson kicked into touch. The ball came out quickly to Lord, who sent Percival over for a try, which Watkins converted.

The visitors quickly added to their score when Collinson slipped past Alexander and, after selling the dummy, gave to Lord, who scored an unconverted try. For a time it appeared that Guy's were tiring under pressure, but they rallied and a rousing struggle was seen in the last few minutes. Just before the final whistle, the Hospital backs produced a bout of passing which was as perfect as it was unexpected, and Johnson raced over in the corner for a try, which Hogbin just missed converting.

Team.—W. J. R. C. Morgan; A. G. Johnson, I. K. Thomas, P. C. Alexander, D. E. Ashdown; J. E. Giesen (Capt.), R. J. Eustace; M. R. Kark, J. P. O'Shea, A. G. Heberlein, I. G. Robin, R. J. Drummond, C. S. Darke, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Coventry

THE visit to Honor Oak Park is an event which Guy's look forward to, and on Saturday, November 12th, Coventry paid the Hospital a compliment by fielding their strongest available side. Our visitors, thanks to the effectiveness of their outsides, proved worthy winners by 4 tries (12 points) to a placed goal (5 points).

Unfortunately, Guy's were unable to call on the services of Clegg, Lewis, O'Shea and Alexander, the latter having dislocated his shoulder earlier in the week whilst playing for Surrey. The Hospital had, therefore, to re-arrange their back division, by bringing in Thomas at fly-half to partner Stanyon. This combination did not work very well, and, although Stanyon did one or two clever things during the game, he did not find his partner as regularly as he might have done. As a result several good opportunities were literally thrown away as a result of lack of understanding.

The visitors' three-quarter line were too good for Guy's, their passing being crisp and clean, and they had a thorough understanding of each other's play.

W. J. R. C. Morgan did not compare with W. E. Lole as a full-back, but this was undoubtedly due to a nasty cut on the head which the former received in the early part of the game.

The forwards again played a fine hard game, and, in spite of the fact that they were up against taller and heavier opponents, held their own until they tired towards the finish.

During the first half, Guy's kept Coventry at bay, and at the interval led by two points. The first score came as the result of a quick heel from the scrum, and Gascoigne sent Mayo and Harriman away for the latter to score after selling the dummy.

After 25 minutes' play Giesen put Guy's ahead as the result of a clever individual effort, in which he slipped through a surprised defence and, when faced by Lole, timed his pass perfectly and sent Johnson in behind the posts for Hogbin to convert.

With the breeze in their favour it was expected that Guy's would hold their own, and, although they started off strongly, Coventry gradually wore down the Hospital defence and eventually Rowley crossed the line following a scrum five yards from the line.

Some minutes elapsed before our visitors scored again, and in quick succession two unconverted tries were registered by J. Kaye, their wing three-quarter.

Guy's tried desperately hard to reduce the deficit, but their opponents' defence was excellent and accurate.

Team.—W. J. R. C. Morgan; D. E. Ashdown, M. J. Lindsey, J. E. Giesen, A. G. Johnson; I. K. Thomas, K. A. Stanyon; M. R. Kark, A. G. Heberlein, C. S. Darke, I. G. Robin, R. J. Drummond, T. Morgan (Capt.), A. R. Clarke, R. A. P. Hogbin.

Guy's v. Birkenhead Park

A PALL of mist and an unpleasant drizzle frightened a number of people from visiting Honor Oak Park on Saturday, November 19th, when Guy's received Birkenhead Park and were successful in a hard and strenuous game by a placed goal, a dropped goal and 2 penalty goals (15 points) to 2 placed goals (10 points).

It was a pity that there was such a small crowd to see a delightful game, full of interest and excitement from beginning to end. Birkenhead Park were at full strength and Guy's were able to field one of their strongest sides for several weeks.

The Hospital thoroughly deserved their win, although the visitors were unlucky not to draw level in the closing stages when their left wing got away on his own and, rounding Clegg, had the line at his mercy, but Johnson raced across the field at top speed and brought Charles down within a yard of the line.

On the other hand, Guy's had two or three scoring chances thrown away, and might have run out easier winners than the score suggests—especially in the second half, when they kept up a bombardment of the visitors' line for some 15 minutes.

Bowles at scrum half, although opposed by that wily International O. W. Roberts, acquitted himself exceedingly well, and sent out a good service to Windsor Lewis, who was at the top of his form.

The whole of the back division worked much smoother than in previous matches this season, and were repeatedly dangerous whenever they had the ball. Giesen in particular appeared to be more at home, and his kicking was excellent. Johnson also had a good match and used his speed to great advantage.

Clegg was sound at full-back, and his tackling and kicking was excellent; his *vis-a-vis* Cockle was also in very fine form and brought off some extremely good saves, when Guy's were pressing hard.

Last, but by no means least, a word of praise to the pack—they played magnificently. Skilfully led by their captain, T. Morgan, they did everything that was required of them. They were up against an exceedingly good pack, and they not only held their own in the set scrums but were decidedly superior in the loose and line-out. If they can maintain this form, then Guy's need not worry about the forwards; Hogbin in particular was very prominent in the line-out, and his kicking was quite a feature.

From the kick-off Guy's attacked, and Lindsey intercepted and cross-kicked, but there was nobody up to accept, and immediately afterwards Charles raced away from our 25 line and passed to Knowles, who scored easily behind the posts, for Richardson to convert.

The scores were quickly levelled, when, after Thomas had made a determined effort to cross, Windsor Lewis got away from a tackle and, cutting through beautifully, sent a difficult pass across to Johnson, who accepted cleverly and raced in near the posts for Hogbin to add the goal points.

After the visitors had been kept on the defensive, Cockle, by a clever manœuvre, sent the ball to Knowles, who spreadeagled the Hospital defence before sending to Lane. A snappy round of passing between Lane and Walker enabled Hilton to carry on the movement, and the latter crossed when tackled by Clegg-Richardson again converting. Good passing between the Guy's threes carried play to the Park's 25, and Windsor Lewis

found touch near the corner flag. The visitors temporarily relieved, but Clegg fielded a difficult punt and sent them back to their 25, when Guy's were awarded a penalty for offside and Hogbin kicked a goal.

Soon after the visitors were again penalised, and from 40 yards' range Hogbin put Guy's ahead with a splendid kick.

Richardson came very near with a penalty kick, and then Thomas broke right through the defence well supported either side. When faced by the full-back, he passed to Hogbin, who appeared too slow to make much progress and was brought down with the line at his mercy.

After the interval, Guy's set up a sustained attack, and a fine dribble by Morgan carried play within 5 yards of the line. The Hospital made repeated efforts to break through, and eventually, after Cockle had "marked," the ball came out to Windsor Lewis, who, without steadying himself, dropped a splendid goal.

Keeping up the pressure, Guy's attacked in force, and Giesen was all but through when Knowles caught him.

Birkenhead Park retaliated, and Richardson, intercepting a pass, sent Charles away, but Lindsey saved an awkward situation.

Immediately following this, Charles again broke through, and Johnson came across from nowhere and saved a certain try. He followed this up a little later with a great corkscrew run towards the centre, but was outweighed by numbers. Morgan led another concerted attack, and Hogbin caught Cockle in possession, but the latter resisted the tackle and made a clever clearance.

Good play by Giesen and Lewis was the next feature, and the Park replied with an effort on the right wing, but a forward pass spoilt what would have been an excellent movement.

Team.—W. B. Clegg; M. J. Lindsey, I. K. Thomas, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, V. H. Bowles; M. R. Kark, J. P. O'Shea, A. G. Heberlein, I. G. Robin, R. J. Drummond, T. Morgan (Capt.), C. S. Darke, R. A. P. Hogbin.

Fencing

Guy's v. Lensbury

GUY'S were at home to Lensbury on Wednesday, November 2nd, and, after a well-contested match, were narrowlybeaten by 14 matches to 12.

Miles again fought extremely well in foil, and well deserved his two wins. Paterson also won two bouts, but was not, perhaps, in his best form. Forbes was definitely disappointing. However, the season is yet young.

The duelling revealed the Hospital's besetting weakness. It would be useless to recall how many matches have been lost in this weapon, but they are not few in number. More hard and concentrated practice, and less slipshod loose play, are what is needed. Hodgkin and Lawrence each won one fight, and Paterson lost all his bouts, one of them resulting in a double hit.

The sabre result was distinctly more cheering, and shows that this is still our strongest weapon. Morris was in good form, and defeated all his opponents. Irish was also in sprightly mood, and yielded in but one fight. Wright was not good in his first two matches, but was almost his old self in the last one.

Scores: Foil—Paterson and Miles, 1 defeat; Forbes, 3 defeats. Epée—Lawrence and Hodgkin, 2 defeats; Paterson, 2 defeats and 1 double hit. Sabre—Morris, 0 defeats; Irish, 1 defeat; Wright, 2 defeats.

Golf

1st. Round of the Inter-Hospitals' Cup

THIS match was played against University College Hospital at Oxhey on Wednesday, October 12th. In the morning, Guy's won all the Foursomes comfortably, and in the afternoon won six of the Singles with two matches halved, thereby winning by 11 matches to 1.

Results:—

FOURSOMES

Guy's		*U.C.H.*	
H. C. A. Weighell D. A. Ibbetson	1 6 & 4	E. P. Sharpey-Schafer H. A. Burt	0
B. J. Doran H. Cameron	1 5 & 3	W. H. A. Jones J. G. Chappell	0
W. C. Kendrick C. B. Elstob	1 7 & 5	R. C. F. Cotterall H. Davies	0
G. O. Jelly H. B. Thornton	1 8 & 6	E. Borgas J. Bolton	0
	4		0

SINGLES

H. C. A. Weighell	½	E. P. Sharpey-Schafer	½
D. A. Ibbetson	1 1 up	H. A. Burt	0
B. J. Doran	1 2 & 1	J. G. Chappell	0
W. C. Kendrick	1 3 & 1	W. H. A. Jones	0
G. O. Jelly (Capt.)	½	R. C. F. Cotterall	½
H. Cameron	1 5 & 4	H. Davies	0
C. B. Elstob	1 9 & 7	E. Borgas	0
H. B. Thornton	1 9 & 8	J. Bolton	0
	7		1

Semi-Final of the Inter-Hospitals' Cup

THIS match was played against St. Thomas's at West Hill Golf Club on Wednesday, October 26th, and resulted in a halved match. The golf was of a high standard on both sides, and some good scores were returned. B. J. Doran did well to halve his match with A. H. Knowles, who was 5 up at the 11th hole.

Results :—

FOURSOMES

Guy's		*St. Thomas's*	
H. C. A. Weighell, D. A. Ibbetson	1 1 up	Robinson, Knowles	0
B. J. Doran, H. Cameron	0	Simmonds, Harper	1 7 & 6
W. C. Kendrick, C. B. Elstob	½	Taylor, Light	½
G. O. Jelly, W. Lewis	1 3 & 2	Bartley, Milligan	0
	2½		1½

SINGLES

D. A. Ibbetson	1 2 & 1	Robinson (Capt.)	0
B. J. Doran	½	Knowles	½
H. C. A. Weighell	0	Simmonds	1 2 & 1
W. C. Kendrick	0	Harper	1 3 & 2
W. Lewis	1 3 & 2	Taylor	0
C. B. Elstob	0	Bartley	1 6 & 5
H. Cameron	1 5 & 4	Light	0
G. O. Jelly (Capt.)	0	Milligan	1 2 up
	3½		4½

The re-play of the semi-final round of the Inter-Hospital Cup was played at West Hill Golf Club on Thursday, November 3rd, and resulted in a win for St. Thomas's by 10½ matches to 1½.

Hockey

Guy's v. Kingston Grammar School

ON November 2nd Guy's defeated Kingston Grammar School by 4 goals to nil at Motspur Park.

After the first few minutes, when the School forwards broke away several times to reach the Guy's circle, the game was almost entirely in our opponents' half, and only the excellent play of the School goalkeeper kept the score as low as four. The scoring should have been opened by Wright, who ran in to hit a weak clearance hard and high, the ball passing just under the crossbar, but not remaining in the net. It could not, however, be seen by the umpires, and a "25" was awarded. After pressing for a long period, Guy's scored through Franklin and, later, through Trethowan.

The School backs and halves found it difficult to clear the ball on the heavy ground, with the result that they were continually under pressure.

In the second half goals were scored by Franklin and by Archer through good backing up, and the whistle went as the School goalkeeper was saving a succession of shots at close quarters. The Guy's forwards in this match began to realise the value of short passing when in their opponents' "25."

Team.—E. A. Mayston; D. P. King, A. G. Richmond; A. W. Turner, R. G. Archer, H. B. Smith; S. W. Wright, J. B. Franklin, L. N. Trethowan, E. B. Rowe, J. W. Dryland.

Hospital Appointments

Pass List

CONJOINT BOARD.
D.P.H.
October, 1932.

R. E. Robinson. L. A. S. Trott.

Papers by Guy's Men

J. R. B. Hern. Retrosternal carcinoma of thyroid gland. *Proc. R.S.M.*, 1932, xxv, 1763.

J. A. Ryle. Diathesis, or variation of disease in man. *Pract.*, 1932, cxxix, 425.

C. P. Blacker. General aspects of hereditary disease. *Pract.*, 1932, cxxix, 436.

L. J. Witts. Constitutional factor in diseases of blood. *Pract.*, 1932, cxxix, 450.

E. C. Warner. Indications and results of tonsillectomy. *Clin. J.*, 1932, lxi, 505.

G. B. Dowling. Infective eczemas of scalp. *B.M.J.*, 1932, ii, 830.

J. B. Blaikley. Resuscitation of infants with carbon dioxide and oxygen. *Lancet*, 1932, ii, 1001.

A. H. Todd. Orthopædic treatment in poliomyelitis. *Lancet*, 1932, ii, 1044.

Marriage

ETTLES—ENGSTROM.—On Nov. 19th, 1932, at Tientsin, North China, Capt. Donald Cotman McCulloch Ettles, M.B., B.S., R.A.M.C., younger son of the late Dr. Ettles of Harley Street, and Mrs. Ettles of West Kensington, to Hilma Doris, eldest daughter of Mr. and Mrs. Engstrom, of Tientsin.

Death

FOUCHÉ.—At Capetown, on 4th October, 1932, Elizabeth, wife of F. P. Fouché, F.R.C.S. of Lister Buildings, 195, Jeppe Street, Johannesburg.

EDS. { E. S. / M. McA.

GUY'S HOSPITAL GAZETTE

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PASSIM

IT is pleasing to note that Guy's still maintains its tradition for brilliance in the realm of experimental pathology, and that in one of the most noteworthy and dramatic pieces of modern research a Guy's man should lead the field. Dr. P. P. Laidlaw, F.R.S., and Mr. G. W. Dunkin, M.R.C.V.S., have, after 10 years' hard work and careful experimentation on a large scale, proved that distemper in dogs is not only a curable disease, but one that can be prevented and almost eradicated. Distemper is to dogs what influenza is to man, only that the mortality is higher and the end results more severe. Rightly, therefore, the new cure has attracted considerable public attention, but, so far, the press has been unable to pierce the modesty of the two research workers, or prepared to tell us something of their careers or previous achievements. The publicity is being given to another medical man prominent just recently in a less favourable connection.

We are proud to recall that Dr. Laidlaw did his clinical work at Guy's, that he studied and taught in our Physiology Department, and that some years later, from 1915 onwards, was the Sir William Dunn Lecturer in Pathology. He left us in 1922 to take up his present work with the Medical Research Council, but before that his name was already well established among physiologists, especially in connection with the coagulation of the blood and pigment metabolism. Rarely can it ever be said of a research worker that his results have been completely successful, but this may certainly be credited to Dr. Laidlaw. The American professor's remark that "the scourge of dogdom is conquered" is amply justified. With the new vaccine-virus method of immunisation, the incidence of infection among 650 foxhounds fell from 100 per cent. to 1.4 per cent., and the mortality from well over 50 per cent. to .3 per cent.

And it is not only for veterinary circles, or even for the family hearth, that Dr. Laidlaw has done such striking service. His complete investigation into one virus disease, the isolation of the virus, the preparation of a vaccine and an anti-serum, must surely point the way to the investigators of the virus diseases in man such as influenza, mumps, measles and yellow fever, a disease already coupled with the name of another distinguished Guy's pathologist.

We know that Dr. Laidlaw is a modest man, but we wonder whether he could not be persuaded to come and give us an account of his investigations, and so provide us here at Guy's with an opportunity of offering him our personal congratulations and good wishes.

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WITH the financial depression showing no signs of improvement the need for more funds has become an even more urgent problem than most people realise. Such a position of affairs naturally leads us to the question of whether the voluntary system is becoming obsolete, a question which has much to be said on both sides.

It is indeed galling when one visits a municipal hospital to compare their equipment with some which we possess at Guy's, and the possibilities of development which they can contemplate and provide for with a steady and adequate income, whereas we have to be content with development which can only be sufficient for a limited number of years, but which is urgently needed and, therefore, has to be embarked upon.

Of course, certain departments in the Hospital are helped by State grants, and there appears to be no excess of red tape with which these workers' hands are tied. But State aid to the Hospital as a whole would merely be the thin end of the wedge, and would soon give way to State control.

Besides the obvious drawbacks to this method of administration, which Mr. Eason so plainly stated at the Employees' Association dinner recently, and the equally obvious advantages, such as better equipment, the lack of which we have

already deplored, there are dangers of a more insidious type which would be bad for Medicine as a whole.

Specialisation, though doubtless good from the point of view of the patient, would tend to be carried to such a degree as to give the student an entirely false outlook. This might be carried a step further and hospitals themselves might be specialised for the treatment of certain diseases.

Again, there would be the risk, perhaps remote, that research might become dependent on the wishes of those in authority, and results would be demanded by a certain time irrespective of the stage to which experiments had advanced, so that these results either would not be forthcoming or would be published possibly in a quite immature form.

It is, therefore, plain enough that the advantages of State control to Guy's would be outweighed by the disadvantages and it is to be hoped that there will be a generous response to the Treasurer's letter in this issue.

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WE should like to take this opportunity of congratulating Sister Clinical on her appointment to be Matron of the Prince of Wales's Hospital, Tottenham, although we feel that her ability in training embryo house officers in the way they should go will be somewhat wasted.

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THE Annual Dinner of the Guy's Hospital Dental Society has been fixed for Saturday, Februaıy 25th, 1933. A Clinical Meeting will be held in the afternoon of that day, to which all past and present students are invited.

Demonstrations will be given by members of the Staff, and cases of clinical interest will be shown. Further details will be announced later.

Lactation

A Paper read before the Guy's Hospital Physiological Society on November 8th, 1832, by G. N. Wright, Esq., and G. D. Channell, Esq.

MR. CHAIRMAN and GENTLEMEN,—The suckling of the young and the production of a food suitable for their nourishment and development is essentially a mammalian characteristic. This specialised method of rearing their offspring, though substantially the same in all classes of mammalia, has become a more involved process in the higher mammals. The mammary gland has developed from the rudimentary structure of the monotremes, where milk-laden hairs in a specialised area of skin constitute the gland, and has become the complicated structure found in the human female.

During pregnancy the fœtus is dependent on the nourishment obtained from the mother through the placenta, but for some time after birth the offspring relies upon the activity of the mammary gland—the essential organ for the production of food in the form of milk as a means of sustenance.

It is this second phase of nourishment—the process of lactation or secretion of milk—that we propose to consider in this paper. Our aim has been to provide an interesting outline of the whole period of mammary activity, mainly in the human being, rather than an exhaustive account of the strictly physiological aspect of the subject. We have included an account of the anatomy and development of the gland, as a true appreciation and understanding of its functions cannot be obtained unless these functions are reviewed. We have further considered the current theories concerning the actual mechanism of secretion and the various factors by which it is influenced.

Turning now to the mammary glands, we find that they are developed by a down growth of the Malpighian layer of the epidermis. In their formation the ectoderm of the embryo thickens along its ventral surface to form what is called the "milk ridge." This ridge becomes invaginated with the production of a bulb-like down growth, opposite the localities where the future mammary glands are to develop. Thus in man two down growths appear, one on either side in the pectoral region. But in certain people rudiments of supernumerary mammary glands are found above and below the normal position.

At the fifth month of fœtal life a number of solid buds, similar to those of sweat glands, arise from the deepest stratum of the ectodermal bulb. From the seventh to the ninth month the lobular buds subdivide at their extremities and begin to canaliculise. At or about birth the depression from which the lobular buds originated is raised and evaginated, forming the surface of the nipple.

In this way from 15 to 20 ducts open on to the surface of the nipple, just proximal to their external orifices they swell out into ampullæ whose function is to store milk, although their capacity is very small. The ultimate inward ramifications of the tubules spread out into alveoli which are lined by columnar epithelium. The ducts are also lined by this epithelium, supported by some areolar tissue and unstriped muscle.

In male and female up to the time of puberty the mammary glands are much the same, consisting only of ducts with a few alveoli surrounded

by fibrous tissue. At puberty, the gland tends to atrophy in the male, becoming connective tissue, but in the female enlargement of the gland is one of the characteristic secondary features. The increase in size is due to an increase in the number of alveoli through rapid growth of latent infantile buds, and to the laying down of a covering layer of fatty tissue.

We have now traced the development of the gland to its adult " resting state." Although it is resting, small periodical changes occur with the sexual cycle of ovaries and uterus. The extent of these changes varies with different women, but with most there is a slight enlargement of the gland at each menstruation. As we shall see later, this is caused by the stimulating action of an internal secretion from the ovary.

During gestation the events occurring in the gland can be divided into two series. Firstly, there is a rapid multiplication of the epithelial cells at the ends of the excretory ducts causing an increase in the number of alveoli and a disappearance of interstitial fatty tissue. Secondly, the glandular cells begin to secrete, and towards the end of gestation a yellow fluid, " colostrum," can be expressed from the nipple. At this time, also, the nipples enlarge and become more pigmented, while a circular area round them, known as the " areola," changes in colour from pink to dark brown. When gestation is over and the gland is actively secreting, it is found to vary in different parts—some being distended with milk, others being empty. In this way the secreting cells work in " shifts," as it were, some resting while others are active.

As the alveoli come to contain more secretion, the columnar epithelium becomes more and more flattened.

It is convenient at this stage to consider the theories of secretion. There are three different hypotheses regarding the manner in which the substances forming the milk pass out from the secretory cells :—

1. That the cells disintegrate and liberate their contents into the alveoli. This is the same method as that used by sebaceous glands.

2. That portions of cells project into alveoli and burst to liberate their contents, the cell then being repaired and the process repeated.

3. That the cells simply excrete the substances into the alveolar lumina without undergoing any histological degeneration.

Opposing the theory of disintegration is the fact that there is no evidence of the extensive cell multiplication that would be expected to replace the large number of cells that would necessarily become displaced. Schafer is of the opinion that any appearances of disintegration which the cells possess is due to imperfect fixation. If this is true theory (2) cannot hold good. The last theory—that of a purely secretory process—obtains support because it is the method used by most other secretory glands, for example, the submaxillary gland.

There has been much discussion as to whether the mammary glands are modified sebaceous or modified sweat glands, and the question is still in doubt. The embryological relations of the gland to sebaceous and sweat glands appear to differ according to whether they are regarded structurally or functionally. As regards structure, Keith points out that on section the mammary gland closely resembles a sudoriferous gland, and Maximow associates the myoepithelial cells present near the excretory ducts of the mammary gland with similar cells in sweat glands. Functionally, however, the mammary glands resemble sebaceous glands in being affected by changes in the generative organs. Also Pembrey states that the only place in the body where caseinogen is found other than the mammary gland is in the sebaceous glands. We may compromise by suggesting that perhaps the mammary glands are developed as sweat glands and later changed to function as modified sebaceous glands.

Now that we have seen what happens during lactation, let us discuss the source and nature of the stimulus that brings it about. The fact that the development of the ovary and activity in the accessory reproductive organs occur simultaneously suggests that one controls the other, or that there is an intimate relation between the two. Much experimental work has been done on rabbits, rats and other animals, and from the results obtained important conclusions may be drawn. Ovariotomy performed before puberty leads to the non-development of the glands; if performed afterwards they degenerate. These effects are ascribed to removal of ovarian influence.

That the ovary contains an internal secretion is proved by removing it and grafting it to the abdominal wall, peritoneum or kidney. If the grafts take properly and a good circulation is established, the animals develop perfectly in every way. Since all nervous connections are severed when the ovary is removed, the stimulus to mammary growth cannot be a nervous one, but must be hormonic. Transplantation of mammary tissue has also been carried out without entire disfunction. The functions of a grafted ovary are carried out quite as efficiently as those of a normal ovary.

Some hormone from the ovary, therefore, is responsible for the development of the mammary

glands. Recent workers have injected ovarian follicular extracts and extracts from the anterior lobe of the pituitary containing a secretion "Prolan A," both of which liberate "œstrin," into ovariotomised rats and guinea pigs. The injection produced enlargement of the glands, but only to the extent to which they attained at œstrus, no secretion of milk taking place. "Œstrin," then, does not account for the changes in the gland during pregnancy, and it has been found that these are brought about by a hormone from the corpus luteum. Immediately after ovulation, the corpus luteum is formed and the mammary glands develop for a few days even in the absence of pregnancy—this state is known as pseudo-pregnancy. If pseudopregnancy be prolonged by injection of luteinising preparations from the anterior lobe of the pituitary containing "Prolan B," the mammary glands develop just as if a normal pregnancy had occurred. This proves that mammary growth is promoted during pregnancy by a hormone from the corpus luteum. For some time it was thought that the fœtus was the source of the stimulus, for if ovariotomy was performed half-way through pregnancy, mammary development continued quite normally. But in egg-laying mammals such as the duck-billed platypus, where there is no interuterine development and, therefore, no fœtal hormone, the rudimentary mammary glands develop fully and function normally.

Apart from the hormonic stimulus to mammary secretion there seems to be also a physical one. For instance, many cases are on record of virgins who have suckled children, and likewise of non-pregnant bitches foster-mothering another bitch's litter. Marshall, in his book the "Physiology of Reproduction," calls to mind a woman who suckled children uninterruptedly for 47 years and who, in her 81st year, still had a regular supply of milk. The reason seems to be that emptying of the ducts during normal suckling constitutes a stimulus which acts on the gland cells directly or by means of a reflex causing them to secrete.

There are other instances of abnormal secretion of milk. Babies of either sex sometimes secrete milk, commonly known as "witch's milk," at birth. The flow lasts for a few days, and is due to absorption of some of the internal secretion from its mother's corpus luteum. Adult males have also been known to secrete milk, and this curious phenomenon is thought to be associated with bisexuality of gonads.

We have discussed the evolution and development of the mammary glands, and we pass now to consider lactation.

Prior to the termination of pregnancy the breasts present three main external changes :—

(*a*) There is an increase in size.

(*b*) The veins become engorged.

(*c*) As we have noted previously, the areola darkens in colour. Even after pregnancy this colour never quite disappears.

Just before the birth of the child a yellowish, watery fluid termed colostrum may be expressed from the breasts. The formation of colostrum precedes the actual secretion of milk, and, if microscopically examined, it is seen to consist of multinucleate cells, the "colostrum corpuscles," impregnated with fat particles.

The exact source of these corpuscles is unknown, but it is thought that they are either :—

(*a*) Wandering leucocytes which have entered the alveoli and taken up fat; or

(*b*) they are actually cells from the centre of the alveolus which have undergone fatty degeneration.

This latter view seems incorrect when it is realised that if cells are to degenerate, new cells must be formed to take their place—an unlikely condition since the energies of the cells must at this time be directed towards milk secretion.

Colostrum is alkaline and coagulates on heating, and besides the fat impregnated in the corpuscles, contains about 3 per cent. protein, but little or no caseinogen.

This formation of colostrum continues until the secretion of true milk begins—normally on the second or third day after labour, though the process may be hastened by putting the child to the breast.

The quantity of milk and the duration of secretion almost entirely depend on the necessities and demands of the infant. As regards quantity, Starling gives the following figures : On the first day secretion is 20 grams, rising quickly to 478 grams on the seventh day. The rise continues until about the 25th week, when the average daily excretion is 963 grams. This level is maintained for two or three weeks, the quantity then beginning to diminish until the termination of lactation.

The duration of lactation in different mammals is obviously governed by the condition of the offspring at birth. In some animals, for example the guinea pig, the young are born in an advanced stage of development and soon able to seek their own food, so that the period of lactation is short and inconstant; in others the young are born helpless, and are of necessity reliant for some time on maternal feeding. In the higher animals the duration is greater, and in the human female nine months to a year may be regarded as an average period, though periods of over a year are quite common. It would seem, however, that the only

real limiting influence on the supply of milk in a healthy nursing woman is that of the ovaries and uterus. In certain countries as soon as a cow begins to lactate the ovaries are removed and the cow continues to give milk for about three years, the excessive lactation being due, no doubt, to removal of ovarian influence.

The discharge of milk from the tubules of the breast depends upon two main factors :—

1. The reflex action produced upon the muscular tissue in the walls of the ducts and in the nipple by suckling.

2. The mechanical action of sucking which draws the milk from the tubules.

It is interesting to note that, besides producing a reflex action on the mammary gland, suckling also by reflex action promotes the involution of the uterus after labour. If milk is very abundant in the glands discharge may take place without stimulus. The removal of the milk from the mammary gland also promotes secretion. This is evidenced by the fact that, in a cow, considerably more milk can be obtained than could possibly be contained in the udder. On the other hand, if milk is allowed to remain in the gland the quantity of secretion at the next milking is diminished. During lactation the skin of the papilla is protected by a fatty secretion from the sebaceous glands in the areola. These areolar glands become enlarged during suckling and appear as small elevations beneath the skin. If we recognise some purpose in this secretion we must condemn the washing of the nipples in antiseptic solution to the evident destruction and removal of this natural fat.

The milk of mammals consists of five main constituents, namely, proteins, fats, carbohydrates, salts, vitamins and water, the quantity or concentration of each varying in different animals. A small amount of the nourishment provided by the milk is used for the production of heat and energy, but a far greater percentage must be utilised in the building of new tissues. It is, therefore, not surprising to find that the constituents present are those most suited for the furtherance of these two objects.

The constituents of human and cows' milk are present in the following percentages :—

	Water	*Protein*	*Fat*	*Lactose*	*Salts*
	per cent.	*per cent.*	*per cent.*	*per cent.*	*per cent.*
Human	88.5	1.5	3.5	6.8	.2
Cow	87.1	3.5	3.5	4.8	.7

Cows' milk may be " humanised " by diluting with water to diminish the concentration of protein and then adding lactose and cream to restore the percentages of sugar and fat after dilution.

Milk is an opaque whitish fluid with a sweet taste and a neutral reaction to litmus. The opacity is due partly to the presence of numerous particles of fat, but mainly to the calcium salt of caseinogen. This fact may be demonstrated by shaking some milk with twice its volume of ether. The fat is dissolved out, but the opacity remains, scarcely diminished. Great discussion has centred round the fact that the fat globules do not run together, and certain authorities are of the opinion that a protein covering—the haptogen membrane—invests each particle, thus effectively maintaining the emulsion.

Considering now the individual constituents, it is found that water in cow's milk and in human milk forms over 85 per cent. It is probably present to render the food fluid and more easily assimilated. The chief protein of milk is caseinogen, present to the extent of 3.2 per cent. in cow's milk and 1.2 per cent. in human milk. Two other proteins present are lactalbumin and lactoglobulin, and they resemble very nearly the albumin and globulin of blood serum. Lactose or milk sugar forms the main carbohydrate, its percentage (6.8) being especially high in human milk. Other carbohydrates, among which is dextrin, are also stated to be present. An early theory, which has received support from modern experiments, stated that the milk sugar was formed by the mammary gland from glucose absorbed from the circulation. This idea was based on evidence of experimental removal of the mammary glands in goats, and an examination of the urine before and after parturition. The urine was found by some workers to contain a reducing substance presumed to be glucose. Conflicting results rendered this experiment useless as a proof of the origin of lactose. A more modern experiment has been to determine the blood sugar of a sample of blood taken from the mammary artery and from the mammary vein of a lactating cow. It was found that the blood sugar in the mammary vein was 20 per cent. lower than that of the mammary artery, thus indicating the formation of lactose from the glucose of the plasma. Salts of milk which are present as .2 per cent. in human milk include calcium, sodium, potassium, phosphates and chlorides. Calcium and the phosphates are particularly useful from the point of view of bone formation. Fats are present as the glycerides, triolein, tristearin and tripalmitin as well as small quantities of unsaturated fatty acids. Fat is in all probability formed from the phospholipine in the blood.

Other influences may have a far-reaching effect on the quality and quantity of the milk. We have, for want of a better definition, termed these the " external factors," to distinguish them from

the internal and hormonic changes which we have considered. The following are the chief "external factors":—

1. Diet.

2. Nervous and mental conditions arising from external influences.

3. Galactogogues—drugs.

4. Disease.

Edward B. Meigs, an American, in an article entitled, "Milk Secretion as Related to Diet," gives the following results of changes of diet in lactating cows:—

(*a*) If the general food supply was inadequate in the early stages of lactation, they continued to secrete the same quantity of milk, obtaining the constituents from their own bodies as shown by a decrease in their body weight. In the later stages of lactation, an inadequate supply of food caused a lowered secretion of milk.

(*b*) The addition or subtraction of carbohydrate from the food caused little alteration.

(*c*) Increased food protein caused an increase in the quantity of milk, and results in the increase of the total amount of milk fat. In general, a nitrogenous diet will increase uniformly both fat and protein content of milk, but a vegetable diet diminishes both.

Meigs makes the observation that diet changes on milk yield will obviously depend on:—

1. The amount of change made.

2. The period of lactation when the change is made.

3. The condition and health of the animal.

4. The quantity of other foodstuffs being given.

In the human female it is reasonable to suppose that some of the above changes resulting from alterations in diet will be substantially the same. A superabundant diet does not increase the total yield or richness of the milk unless the protein content is increased.

Although the stimulus to mammary secretion is definitely not nervous in origin, yet adverse nervous and mental changes can, through their effect on the general metabolism, exert considerable influence both on secretion and on the actual constituents of milk. In a cow which had been considerably excited by the annoying attentions of some dogs the milk sugar was not notably affected, but the secretion of fat was quickly diminished. In the human female instances of great shock or emotion causing complete inhibition of mammary secretion have been recorded. In woman the occurrence of menstruation sometimes causes changes in the milk, with a corresponding harmful effect on the offspring.

Exercise in the open is said to increase the flow of milk. The quantity of fluids taken also tends to produce an increase in the supply. Galactogogues which are supposed to increase the quantity of milk probably depend upon the amount of fluid taken with them for any advantage resulting from their use.

Of the drugs which have any influence on mammary secretion, atropine and pilocarpine are the most important. The latter tends to increase the secretion, though not to any decided amount. The effect of atropine is negligible, and the value of "belladonna plasters" for drying up milk secretion probably depends chiefly on the pressure of the plaster rather than any action of the drug upon the nerve endings. Disease of the mammary gland does not come within the scope of this paper, but it must be considered as a factor which would have a considerable effect on secretion.

In these enlightened days of patent baby foods, and particularly ingenious appliances for administering them, lactation and the natural method of feeding have received scant attention. Yet the natural way so obviously remains the best, and normally the food of the mother is entirely suitable for the needs of the infant. In certain cases it is true that, owing to disabilities on the part of the mother, external aids must be sought. One of the greatest advantages of natural milk is that it contains antibodies for the protection of the child against disease. Surely the acquisition of this natural, though not always effective, protection is to be eagerly sought after. Some people are, no doubt, led astray by an ignorance of the benefits of natural feeding or by a scorn of what is termed an "out of date" method; others, perhaps, are influenced by the statement that a certain food is "just as good as that of human origin."

This concludes our necessarily brief survey of lactation. We hope that we have succeeded in arousing your interest and, at the same time, that we have provided an interesting paper on lactation —a truly great branch of the reproductive process.

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Medical Sickness Annuity & Life Assurance Society, Limited

THE Annual General Meeting of the Medical Sickness Annuity and Life Assurance Society, Limited, of 300, High Holborn, W.C.1, was held at the First Avenue Hotel, High Holborn, W.C.1, at 4.30 p.m., on Wednesday, the 16th November, 1932, Dr. F. C. Hartley presiding.

In his address to the members he said that, in spite of the very difficult times, the new business had been well maintained, both in the Sickness and Life Assurance departments. These two funds now amounted to over £800,000.

Sickness claims had been larger than normal, which was probably the result of the bad times through which everyone had been passing.

The Society had been appointed one of the three companies to transact the business of the new Pension Disability and Life Assurance Scheme for National Health Practitioners inaugurated by the British Medical Association.

He referred briefly to the House Purchase and Practice Purchase Schemes, which were proving of considerable benefit to members taking advantage of them.

As this was the year for the quinquennial valuation, it was necessary to value the Society's stocks, and these had been written down, where necessary, to the market prices, or below.

Referring to the actuaries' report on the Society, he congratulated the members on the result, which showed that, even after writing down the stocks, the total surplus was £143,000. Both the Sickness and Life Funds had been valued on a most stringent 3 per cent. basis, with additional reserves against any unforeseen contingency that might arise.

A bonus of 12*s*. per guinea per annum was declared on sickness insurances, and on life insurances the bonus was increased from £1 to £1 3*s*. per cent. per annum.

The retiring Directors, Sir William Willcox and Mr. W. H. Dolamore, were re-elected, and Mr. Lancelot Bromley was elected in the place of the late Dr. F. J. Allan. Messrs. Harber, Sturges & Fraser were re-appointed auditors, and the proceedings closed after a vote of thanks to the Chairman.

Dirge

(*Long after Cory*)

THEY told me, first premolar, they told me you were dead;
They told me that I hadn't got a sound tooth in my head.
I wept as I remembered how often you and I
Had quarrelled over sausage rolls and steak and kidney pie.
And now that thou art lying, my dear old carious pest,
In some incinerator by gentle flames caressed,
Still is that sweet neuralgia, thy legacy, awake;
Extraction took thy pain away, but that it cannot take.

"TRAUMA."

Nursing News

THE following nurses have recently been successful in passing the Final State Examination, and their names have been added to the General part of the Register :—

I. D. Daish
H. S. Ekendahl
E. M. Fish
F. C. Fuller
M. O'Neill
K. Parker
P. Pearson
L. Picknell
I. Howe
A. Hulse
C. Habbeshaw
M. Harvey
J. M. Impett
D. Kay
M. Matthews
M. O'Donovan
G. Parker-Wood
J. Pitt
M. Roseveare
L. Stoklisky
G. Stokes
A. J. Smith
A. Stephenson
O. Wilson

Dental Jurisprudence

A Paper read before the Dental Society, Guy's Hospital, by T. Helmer, Esq., L.D.S., R.C.S.(Eng.).

MR. CHAIRMAN and GENTLEMEN,—The various examining bodies in dental surgery in this country demand, and usually get, proficiency in many subjects. The education we obtain in our endeavours to obtain a diploma or a degree is liberal, and, however resentful we may be at having to explore the many channels of knowledge, some more than others may interest us and perhaps open up a hobby for life. From the study of dental anatomy alone we may become zoologists of repute, and take our progeny to survey the wonders of Regent's Park unbustled by the plebian masses. Or again, we may become anthropologists of some renown and perpetuate our names by giving them to somewhat complex crania which we have sedulously dug out of the ground on Saturday afternoons. You do not need reminding that the scope of your work ranges from the study of life so minute that Leuwenhoek would marvel to that of the largest mammal of which Jonah had inside information, and with the dentition of which he was better acquainted than we are. And so I could go through the whole of our curriculum, some knowledge interesting, some helpful, some both of these and some neither. In this catholic range there is to my mind one serious omission. Consider a newly qualified dental surgeon taking breath after his climb on academic slopes to that peak of contentment which membership of a distinguished and learned profession gives. Is he aware of the moral and legal obligations that he owes to the public and his fellow practitioners? Do the examining bodies hesitate to add more to our burdens? Out of five years' training is there not time to give three one-hour lectures on dental jurisprudence?

In Hanley County Court during September, 1932, a dental surgeon was sued by a patient for the sum of £794. Although the patient did not win his case, this would have been a very unpleasant occurrence for a newly qualified man.

In another case a dental surgeon, attempting to remove a tooth, left a root behind. He made several attempts to extract it, but failed. The patient's husband bullied the dentist into writing a letter saying he would be responsible for all costs of treatment. The costs eventually amounted to £400. The dentist appealed to his Protection Society, who informed him they were debt-collecting agents only.

These two cases go to show that some knowledge of the law may be of immense value in practice.

HISTORY

In the early history of English law the amount of recognition that dentists or tooth-drawers, as they were then called, received was slight. We must seek first of all in the history of the Barbers' and Surgeons' Guild for any mention of dentists. Their records show that the Guild of Barber Surgeons in 1462 was granted a Charter by Edward IV, and the Charter ordered that the "Freemen of the Mystery of Barbers of our City of London exercising the mystery or art of surgery and drawing of teeth of Our Liege Men may be the name and Deed one body and one perpetual comity, etc." This Charter is preserved at Barbers' Hall. In 1497 a Diploma was granted by the Barbers to a freeman enabling him to practise surgery, and in it reference to the rights of the Company with regard to the drawing of teeth was made. In 1551 they admitted to the Company John Brickett, tooth drawer. In 1557 they admitted William Tomlin "to drawe teeth and make cleane teeth and no more," and at least two Masters of the Barber Surgeons' Guild were tooth-drawers. There are references to dentistry in the records of the Barber Surgeons' Company of York, 1552, and of Norwich. In 1541 a Statute was passed enacting that Barbers were no longer to practise surgery except the drawing of teeth.

A split occurred between the Barbers and the Surgeons about the year 1745. The Barbers carried on and became the Barbers' Guild, as it is to-day. The Surgeons formed a Guild of their own, and in 1800 obtained a Charter and became the Royal College of Surgeons. The control of the practice of dentistry does not appear to have been claimed by either of these two bodies. In 1841, G. Waite made an appeal to Parliament, the Medical Profession and to the public on the present state of dental science. He proposed that no one should practise without having undergone an examination.

At this time there were two entirely separate dental bodies in England: The Odontological Society, now the Odontological Section of the Royal Society of Medicine, which favoured an agreement with the Royal College of Surgeons to examine dentists; the College of Dentists, who wished the examinations to be conducted entirely by themselves. The Odontological Society seems to have been the more successful of the two. The Medical Bill of 1857 and the Act of 1858 state that "it shall notwithstanding anything herein contained be lawful for Her Majesty to grant to the

Royal College of Surgeons of England power to institute and hold examinations for the purpose of testing the "fitness of persons to practise dentistry." The Odontological Society in 1857 started the London School of Dental Surgery and Dental Hospital for London, now the Royal Dental Hospital. At the same time the Metropolitan College of Dental Science was founded by the College of Dentists, now the National Dental Hospital. In 1859 the College of Dentists applied for a Charter and failed. In the same year attempts were made to introduce the Medical Act Amendment Bill, which sought to provide that licentiates be registered under the Medical Act. This was successfully opposed by non-medical dentists. In 1860 the first examination of the Royal College of Surgeons took place; 43 candidates presented themselves for examination and 43 were successful. There were 100 licentiates at the end of the year, and by 1870 300 licences were granted. The Odontological Society of Great Britain had by this time placed themselves in such a strong position that 111 members of the College of Dentists joined them and the College of Dentists ceased to exist. In 1865 the first list of licensed dentists was published in the unofficial Medical Directory. In 1878 the Dental Reform Committee were successful in getting the Dentists' Act passed. It was found, however, that this Act was defective, as it merely stopped practitioners from calling themselves dentists and suing for their fees in a Court of Law. It did not stop them from practising under such names as "Dental Institute" or "American Dental System" and other high-sounding titles. This quackery reached such a pitch that it was shown that the Act was worthless as a protection.

In 1921 there were many thousands of unqualified people with varying degrees of skill and knowledge. It became necessary to control and regulate these people, and to introduce legislation making impossible the increase of this class of practitioner and ensuring that, in future, the profession consists only of qualified people, and so the Act of 1921 was passed. I do not propose to read the Dentists' Act. It is found in front of the Register and should be read by all. In the same place the Regulations, Warning Notices of the Dental Board and such things as exemption from Jury Service may be found.

There was an enormous amount of work done by the British Dental Association to bring the 1921 Act into being. Membership of this Association, which has done so much for the profession in the past, is highly desirable for the protection of the profession as a whole in the future.

There is little existing literature on forensic dentistry, and, apart from "Crewe's Treatise on the Law Relating to Dentists and Dentistry," P. B. Henderson on "Dental Jurisprudence" in the first edition of "Bennett's Dental Surgery," and "Dr. Bullock's Laws Relating to Medical, Dental and Veterinary Practice," there is practically nothing written.

PARTNERSHIPS

I do not propose to deal with partnerships, engagements of assistants and purchase of practices. Samson in his work "Progressive Practice" deals with this question in a very efficient manner. This is a book which should certainly be read by all men who are about to qualify or are newly qualified. In addition, the Partnership Act of 1890 explains the law of partnerships, and Barnard and Stocker's book on "Medical Partnerships" should be consulted. Dr. Bullock, in a paper read before the Metropolitan Branch of the British Dental Association, sums up partnerships so amusingly and successfully that I feel it would not be out of place to quote him :—

"It is well to remember the old adage that a partnership is like marriage. For it to be successful the partners must be of such temperament that they get on easily together and are willing to give and take and to be mutually forbearing. Like a marriage, a partnership is not only a private affair, it has its public side. Irregular unions are bad from both points of view, for neither do the individual partners know where they are, nor can the general public have any confidence that the arrangement will last. Unlike marriage, however, a partner may be taken on trial as it were, either as an assistant or as a salaried partner for a short period. A partnership is not merely a matter of friendly arrangement between friends. Whatever the personal relations may be between the two prospective partners, it is absolutely essential that, having after due reflection decided that a life-long association would not only be bearable but mutually advantageous, a partnership deed should be drawn up making proper provision for everything that can be foreseen regarding the duration of the partnership, and the rights and responsibilities of the partners."

RECOVERY OF FEES

No special provision is made in the Dentists' Act for the recovery of fees by dentists. Despite this, their right at common law to recover fees is not affected in any way. Special precautions must be taken in dealing with minors. It is only possible to bring action for payment in respect of

work that is absolutely necessary. Care must be taken to ensure that a parent or guardian gives consent to all work that is done. It is also worthy of note that a husband may disclaim liability for work done for his wife if that work is not authorised by him and if what has been done was not necessary, or if the quality of the work was too extravagant for her situation in life as his wife.

EXPERT EVIDENCE

It may be necessary at some stage in a dentist's career for him to give evidence in a Court of Law. This may be of two kinds : evidence as a member of the lay public in which he is treated without any special consideration whatsoever ; or he may be asked to assist His Majesty's judges in their dispensation of justice. In the latter event the most common instance in which advice is sought is in an action for negligence against another dentist. It is important in the giving of evidence to remember that it is his duty to give his own personal unprejudiced opinion for the guidance of the Court. The amount of assistance the law seeks from the dental practitioner is, of course, negligible when compared with that of the Medical man. In the past, however, numerous cases of identification have relied solely upon the evidence of dentists. In 1849 Dr. Webster, a teacher of chemistry in New York, killed his assistant, Dr. Parkman, to whom he owed a large sum of money. Suspicion fell on Dr. Webster and his laboratory was searched. Some human remains were found, among them the greater part of a mandible and a quantity of gold. It was discovered that Parkman's dentist had a model of his lower jaw, and this was identified as being similar to the remains of the mandible ; also the gold was assayed, and it was found to be the same as was used in some work done for Parkman. On this evidence Webster was sentenced to death, and confessed just before the sentence was carried out.

In 1897, the Duchesse D'Alencon was burned to death at a Charity Bazaar in Paris, and her remains were identified by her dentist, who made an inspection of her mouth.

Miss Holland, who was killed by Samuel Dugal at the Mote Farm, Essex, in 1903, was also identified by work, fillings, etc., that had been done.

In 1917 a body was found floating off Brooklyn Pier. It had been in the water for over eight months. Bridge work in the mouth was identified by the dentist who did it. He gave the address of the mother of the patient, and she identified the body as that of her daughter.

The Prince Imperial of France, killed in the Zulu War, 1879, was identified by his oral condition.

PROFESSIONAL SECRECY

In the course of work facts may be discovered about a patient, such as pregnancy, syphilis or anatomical abnormalities. It is interesting to note that no such thing as retaining the privilege to refuse to give evidence in Court exists. When such evidence is given in Court, the giver of that evidence cannot be sued by his patient for divulging anything of a secret nature.

NEGLIGENCE OR MALPRAXIS

The earliest recorded case of a law affecting malpraxis in medicine is in the Laws of the King of Babylon, 2285 B.C., which enacts that " if a doctor has treated a man for a severe wound with a lancet or bronze instrument and caused the patient to die, one shall cut off his hand also. If he has operated on a slave and the slave has died, he shall give a slave for a slave." This rather restricted the doctor's failures in private practice, and would be unfortunate for some gentlemen practising to-day.

It cannot be urged too strongly that on qualification one should join a recognised Defence Society. For a small annual subscription one is protected by an organisation which has very large resources and infinite experience. In addition to this, a patient is much less likely to sue a practitioner who has an organisation of this kind behind him than a practitioner who is unprotected. A dentist, threatened with proceedings, should never make a statement, either verbally or in writing, before consulting his Protection Society.

A dental surgeon was sued by a girl for removing a lower third molar. Inflammation resulted, but, on inquiry, it was found from the dentist's records that he had not been in any way negligent, and the case was dismissed. The keeping of accurate records is of great assistance to the Protection Society in the preparation of a sound defence.

A practitioner is not bound to attend a case which he does not wish to attend, even if the need be urgent, but in every case where treatment has once been undertaken, even gratuitously or from charitable motives, the practitioner must run the risk of an action for negligence. When a dental surgeon starts in practice his duty to the public is to use reasonable knowledge, skill and diligence in the performance of his work that no ill may fall to the public.

An action for alleged negligence may be grounded on :—

1. Want of skill.
2. Want of care.

What is the amount of skill which must be shown ? " Every person who enters a learned profession undertakes to bring to the exercise of

it a reasonable degree of care and skill," and therefore a dentist is not answerable " because some other practitioner may possibly have shown greater skill and knowledge." It is agreed that what is needed is the " skill shown by the ordinary, average practitioner." It is no defence in an action for malpraxis to say that the services were voluntary and no fee was paid. If the practitioner does not remain conversant with the recent advances in his profession he is laying himself open to a weakened defence if an action be brought.

Claims for damages against dentists for alleged injuries due to negligence may occur; breaking of hypodermic needles during the administration of a local anæsthetic is a common cause, fracturing the mandible, dislocation of the mandible, laceration of the mucous membrane or skin, or burning by drugs may be other causes.

There are many instances of death following extractions due to the patient having hæmorrhagic tendencies. A waiter named Dubois, aged 39, was operated upon in 1920. He had a history of bleeding, and the premedication chosen by his dentist was calcium chloride. Profuse bleeding followed the operation. The patient was admitted to St. George's Hospital; horse serum was injected and a blood transfusion was given, but the patient died a few weeks after the operation. The dentist was exonerated from blame. Calcium chloride treatment may have been a reasonable precautionary measure 13 years ago, but to-day it would certainly not be held to be sufficient. At an inquest in January, 1920, on G. W. Bidwell, aged 20, it was stated that he had had six roots of teeth extracted at the Northern Hospital, and had died the next day from hæmorrhage. There was apparently a history of bleeding in the family, and yet no precautions had been taken. A verdict of death by misadventure was returned, but I venture to think that if these extractions had been done privately a different verdict might possibly have been returned.

A case is reported in *The Times* during 1927 when a father sued a dentist for negligence in extracting the teeth of his daughter. During the operation a tooth fell down the trachea into the lung. Pneumonia supervened and death followed after an operation. Mr. Justice McCardie laid down in this case that it was the duty of the dentist to warn the patient of what had occurred, and also to take an X-ray to locate the tooth. In cases of death following an operation a dental surgeon should claim the right given him by the Coroners (Amendment) Act, 1926, Section 22 (4), to be represented at the post-mortem examination.

For his own protection a dentist should never administer a general anæsthetic to a woman patient without the presence of a third person in the room. This will prevent his being laid open to an action for misdemeanour. Although Professor Sigmund Freud is not fashionable at the moment, after reading his works I should certainly not dream of operating on a woman without a third person being present.

I should like to thank Mrs. Lillian Lindsay, the Hon. Librarian of the British Dental Association, and also Mr. F. N. Doubleday, for their kind assistance in the preparation of this paper.

The interest which this meeting aroused was considerable, some 98 members were present, and doubtless much benefit was derived from Mr. Helmer's most excellent paper.

Correspondence

Guy's Hospital

To the Editor of the GAZETTE

SIR,—I know that times are bad, and that it may appear to be an unsuitable occasion to make an appeal for a hospital; but I have lately received at Guy's a generous communication which leads me to think that there may still be others who might be in a position to help us.

Mr. Thomas Arno, of Eastbourne, has offered to give to Guy's Hospital £5,000 subject to the condition that £50,000 is collected from other sources. Mr. Arno will start the fund with a donation of £1,000, and will give us a further donation of £1,000 on each £10,000 that is collected. May I therefore ask for the hospitality of your columns to make this offer known to your readers, in the hope that others, stimulated by Mr. Arno's generosity, may send contributions of any amount to enable us to reap the full benefit of his proposal.

I should like as briefly as possible to put the present serious financial position of Guy's Hospital before you. Since the end of the war Guy's has had a deficit on maintenance in every year but two, and these deficits have averaged £10,000 a year. As a result the accumulated maintenance deficit stands at £102,000, and, in addition, a building debt of £91,000 brings the total hospital indebtedness up to £193,000. In 1931 there was a deficit of £14,491. We cannot go on like this, and unless in the immediate future the hospital receives some substantial measure of additional assistance, the Governors will have seriously to

consider a drastic reduction in the number of beds available for the sick poor.

There still seems to be a misapprehension in the minds of the public that Guy's is a wealthy hospital, and that it does not need the support that is so generously given to other institutions. Guy's is not a wealthy hospital. Its endowed income is only £68,000, while its annual expenditure is over £190,000. Situated as it is in a poor neighbourhood, not much seen by the public, Guy's is in danger of being forgotten. Local benevolence has been taxed to the uttermost, and, though patients have made great efforts to contribute all that they can, and though the Governors are exploring every means of increasing the hospital's contributory income, there still remains a great annual gap to be filled.

I estimate that even in this year we shall have to face a deficit of £10,000 to £12,000, and it would be of incalculable benefit to Guy's if Mr. Arno's appeal could bring me in this sum before next Christmas Day. This would enable us to start the New Year with no addition to our burden of debt, and to hope that in the very near future the whole of the £50,000 which Mr. Arno desires to raise for us may be forthcoming.

This is our position, and may I hope that my appeal will not fall on deaf ears, and that benefactors may still be found to carry on the work of Thomas Guy's foundation.

I shall be happy to receive contributions of any amount, and as our need is urgent I am hoping for a quick and ready response. Time is everything to us.

Yours, etc.,

F. P. WHITBREAD,

Treasurer.

Guy's Hospital,
S.E.1.

"Cricket Blues"

To the Editor of the GAZETTE

SIR,—I notice in your issue of the 26th ult, a statement concerning the award of Cricket Blues.

I should like to point out that there is no such thing as a "Cricket Blues Committee." The constitution of the Blues Committee of the Clubs' Union is clearly defined in the Rules of the latter body (copies of which can be had from the Medical School Office). Their recommendations for Blues are submitted to the Council of the Clubs' Union, and, until approved, no Blue can become effective.

Yours, etc.,

N. ECKHOFF,

Hon. Sec.,
G.H. Clubs' Union.

Guy's Hospital,
S.E.1.

The Mikado

THERE is at the moment a fierce controversy being raged between "Pro Bono Publico" and "Mother of Ten" in the correspondence columns of the daily press on why Gilbert left Sullivan, or Sullivan Gilbert—we never can remember which. To such lengths of Savoy idolatory we are not prepared to go; we do not believe that comic opera will die with Sir Henry Lytton. On the other hand, we have all met the man who cannot abide Gilbert and Sullivan at any price, who foams at the mouth at the mere mention of them, and looks daggers should one chance to hum "Tit-Willow" over the breakfast egg. The same man will be quite open in his sneers at amateur theatricals, and delights in quoting to us the devastating "Midnight Matinee" of Noel Coward.

We are not of either of these parties—we prefer to keep the middle course; and it was with a perfectly open mind, neither predisposed to enjoyment by the fact that we were going to hear Sullivan, nor already biassed against any hope of enjoyment for the same reason, that we set out for a good dinner and the Guildhall School of Music theatre one night a week or so ago.

We arrived late, luckily, as the theatre is rather bare and forbidding and requires every seat full before it can wear the cheerful air in which comic opera can be expected to thrive.

The orchestra was just beginning the overture; we sank into our seats, we closed our eyes, we prepared to enjoy ourselves. Someone trod on our shoes, someone said, "I'm so sorry." Reluctantly we struggled to our feet, and wedged ourselves into that singular and undignified position only in which is it possible for one person to wriggle past another in the stalls of a theatre. The disturber having at last settled herself into position, dropped a programme for us to grovel and pick up, got up because her frock was caught in the spring of her chair, and finally settled down to a soft but sibilant whisper with her neighbour. By the time she was finally silenced we were just

in time to join in the applause which greeted the end of the overture and the raising of the curtain.

We were greeted by the gentlemen of Japan, waving fans and looking very Japanese and gentlemanly. During the opening chorus our attention was somewhat distracted from the performance by the lady on our left, who was indulging herself in the ignoble pursuit, peculiar to amateur productions and audiences, of picking out her acquaintances in the chorus from beneath their disguise of grease-paint and their wigs. They all looked thoroughly Oriental and inscrutable to us, and it was with something of relief that we heard the dear creature say, "And that's Mr. Hodgkin there on the end of the row, leaning on a pillar." We looked, and sure enough it was Mr. Hodgkin, but what a handsome Japanese he makes!

These distractions were driven from our minds by the entry of Nanki-Poo in an exceedingly attractive costume, and by his singing of "A Wandering Minstrel I." Even the dear lady on our left was silenced for a few moments, although she was sure that he must be one of those nice boys who had taken sixpence off her on London Bridge Station a few weeks ago. She was eventually persuaded by her friend that she must be mistaken, as Mr. Laurence Ollis, who filled the part of Nanki-Poo (and how exceedingly well he filled it!) was not a member of Guy's Hospital at all. We were glad to see that this held her for a little while; we were beginning to fear that nothing short of bilateral hypoglossal paralysis would prevent her having her say.

Then upon our delighted eyes dawned Mr. Harry Hamilton as the noble Pish-Tush, a most patrician figure and well worth the slight facial sacrifice which Mr. Hamilton had been forced to make to attain it. He and the chorus then dealt very adequately with the "And you are right and I am right." Pooh-Bah then made his entry, and rolled out to us his many high offices and the manner, in which he had been forced to sink his pride in order to obtain them, with evident gusto; perhaps a little too much gusto, as he tended to become more indistinct as he became more vociferous. Mr. Norman Barber redeemed this fault, however, by his singing, and the trio between him, Nanki-Poo and Pish-Tush was very effective.

The entry of Mr. Stanley Wright as Ko-Ko gave us another of those surprises, peculiar to amateur productions; we had no idea that he had such an amazingly funny face, which is only right and proper in the ideal Ko-Ko. His voice might not be of the most powerful, but his enunciation and delivery were very good, especially in his "Taken from a County Jail," which he enriched with a wealth of appropriate gesture. The "I've got a little list, I've got a little list," was also good, but, to the critical mind, its attractions were not increased by the alteration of the original text and the introduction of topical allusions. For instance, one line in particular has always appealed to us: "That singular anomaly, the lady novelist," is a line as applicable now as it was when Gilbert first wrote it. We did not think the song improved by this line being changed to something about an anti-vivisectionist, a rather too vividly coloured fly for the medical trout in the audience.

There then entered to us the "Train of little ladies," singing just a little out of breath as though they had run all the way from school without stopping, but very charming. Yum-Yum (Miss Megan Thomas), Peep-Bo (Miss Christine Longfield) and Pitti-Sing (Miss Joan Arthurton) introduced just the right note of school-girlish light-heartedness, and their singing of "Three little maids from school are we" well deserved the thunderous applause with which the audience greeted it. We were very impressed by the well schooled fan work of the male chorus in quelling their chatter, which seemed to be so embarrassing to Pooh-Bah, and by his forced condescension to them.

The consequent billing and cooing between Yum-Yum and Nanki-Poo being done, and done very prettily, the play proceeded to entangle still further these unhappy lovers and the wretched Ko-Ko, and the latter's face was extremely expressive as he hesitated between his love of Yum-Yum and his fear of the Mikado, who was sure to find out that he, the amateur executioner, was not carrying out the Imperial Orders.

The appearance of Katisha (Miss Dorothy Jenking) soon put a check on their conspiring, and, singing very well, she attempted to claim her lover. Miss Dorothy Jenking is to be congratulated on her singing, especially in this scene ("O fool that flee'st" was exceptionally good), and in her "Alone and yet alive." She is also to be congratulated on her make-up. Seldom have we seen such a cachectic lady, obviously with one foot in the grave, and still clinging to her youthful hopes and loves. A marvellously preserved old lady we thought her.

Act II opened with Miss Joan Arthurton looking exactly as a Pitti-Sing should, and very charming, singing, "Braid the raven hair." She well deserved her encores. Next Yum-Yum, looking every inch the shy bride, beguiled us with her tale of "The sun whose rays." Never have we heard it sung better.

To deal with the rest of the act in detail would be irksome to the reader; let us hurry on to the entry of the Mikado, preceded by his troops and standard bearers. Mr. Leslie Woodiwis made a most impressive and terrifying figure, and his scowls of indignation at his daughter-in-law-elect made us feel most uncomfortable. However, it was not till he embarked upon "A more humane Mikado never did in Japan exist" that we appreciated his full magnificence.

In the unravelling of the net of deceit which Ko-Ko had woven and in which he had caught himself fast, Mr. Woodiwis was the most sinister Mikado that has appeared to our delighted senses, his "something lingering, with boiling oil in it," was completely hair-raising, and we all pitied the poor Pitti-Sing, Ko-Ko and Pooh-Bah.

Ko-Ko's singing of "Tit-Willow" was very well received, so much does he throw himself into his art that when he sang of the cold perspiration bespangling his brow, we almost fancied we could see it on the unfortunate Ko-Ko's own forehead.

This led to the final reconciliation and to the full-throated singing of the Finale, "For he's gone and married Yum-Yum," by the chorus, and then the curtain on a most enjoyable show.

Were we to give due praise to all the people concerned in this production we would trespass too much on the Editor's valuable space; were we to say nothing at all of those who worked so hard behind the scenes would be ungracious, especially to the perspiring Japanese gentleman who gave us a tooth-mug of sherry, when we felt that we needed it, down in the depths, somewhere behind the scenes. We would, however, give all praise to the choruses, male and female, who sang with vigour and evident enjoyment, to Mr. Herbert Templeman and his well-controlled orchestra, and finally to Mr. Henry Leffler, who must have done an enormous amount of work to have given the whole production such a smooth finish.

P.V.R.

Guy's Hospital Employees' Association Biennial Dinner

THE Second Biennial Dinner of the Association was held on Thursday, 24th November, at the Bridge House Hotel, and was a most enjoyable and successful function. We were glad to see all the various departments of the hospital so well represented, and that even those who have retired from the service of the hospital still take the keen interest in its affairs that is so characteristic of Guy's. Another pleasant, but unusual, feature was the absence of long-drawn-out speeches, there being only two and these both short. They were mixed, as the pill in the jam, in a concert of surprising variety.

The items rang the changes from gay to sentimental in the most entertaining manner, especially one song which began by being soulful and became almost startlingly amusing. The choruses of several old favourites were sung with vigour, especially by the older guests.

The toast of the King and Royal Family was proposed by Mr. H. L. Eason, President of the Association, and that of Guy's Hospital and Schools by Dr. J. A. Ryle. Dr. Ryle said that he had to thank the hospital and schools for many friendships and much of the happiness of his life. It was 53 years since his father came to Guy's, and his son had just entered. Dr. Ryle went on to say how the friendliness of Guy's was typified by the dinner, and how they could all be compared to members of a large community working for a common end. Service and Education were the two words which expressed their work whatever it might be—they all played their part in the smooth running of the hospital, and were being educated to fill more responsible positions when the occasion should arise.

Mr. Eason, in seconding the toast, spoke of the long and loyal service of various members of the Association, some of whom had retired since the last Dinner, but he was glad to see there was a new generation coming along to carry on the fine example set them. Mr. Eason then spoke of the voluntary hospital system. Many people thought in the present hard times it could not continue long, and that we should soon have only State-aided hospitals. He hoped not, as the spirit of service with the patient's welfare as the chief consideration was only found at its best in voluntary hospitals. Moreover, since 1913 the total income of all the voluntary hospitals had been nearly trebled, and the various contributory schemes had also enormously increased. The other burning question was—should we have sweepstakes for hospitals?

He did not intend, he said, to consider the morality of sweeps, as he had at the moment a book of tickets in his pocket, but only how the hospitals might be affected. We must realise that if we had sweepstakes *all* charities would have to participate, and to finance the hospitals of England alone we would need a sweepstake of the size of the Irish Sweep every three weeks. The result of this extraneous aid would be the withdrawal of subscriptions from our subscribers, and

when the public became tired of sweepstakes, as they inevitably would, our position would be far worse than it is even now.

Mr. Eason then presented Cups to the winners of the competitions during the last season—Miss R. Goodall and Mr. Wagstaff. A replica of the Ladies' Cup was also presented to Miss E. Goodall, who had won the Cup on the four previous occasions. The evening closed by everyone singing "Auld Lang Syne."

Sport

Rugby

Guy's v. Old Cranleighans

AT Honor Oak Park on Saturday, November 26th, Guy's, after being eight points behind at the interval, gave an excellent display in the second half, and eventually were successful by a placed goal, 2 penalty goals and 2 tries (17 points) to a placed goal, a penalty goal and a try (11 points).

It is many years ago since Guy's played the Old Boys, who have improved considerably during the last two years, and their record this season is particularly good.

During the first half the Old Boys had the advantage of the wind, and within five minutes took the lead as the result of a splendid interception by Lambert. At the time Guy's were attacking, and Thomas tried to cut through, but when tackled by Hindley he tried to pass to Giesen, but Lambert anticipated the movement, intercepted, and made a fine run for half the length of the field before registering a try behind the posts, which Lee converted.

Good work by Thomas and Darke looked dangerous for the visitors, and they were rather fortunate to find touch in the 25. For several minutes Guy's pressed, and Giesen was all but over when he was brought down on the line. Soon afterwards Guy's were awarded a penalty for offside, and Hogbin kicked a perfect goal from 40 yards' range.

Following this reverse the Old Boys woke up and gave a capital display. They pressed hard, and Lee was only prevented from scoring as the result of a flying tackle by Giesen, five yards from the goal. The Hospital were kept in their 25 for a few minutes, and just as Darke and Morgan were relieving the pressure, the Old Boys were awarded a penalty, and from the touch-line Lee kicked a good goal.

A clever movement between Lambert, Hindley, and Lee got the Hospital defence in a tangle and a score appeared certain, but a try was thrown away as the result of a forward pass near the line.

Before the interval the visitors increased their lead after some clever combination between Hindley and Lambert, which ended in Couchman running in near the posts, but Lee missed an easy chance to add the goal points.

Encouraged by this success the Old Boys started the second half with plenty of dash, and Guy's were compelled to touch down. However, Guy's re-organised their back division, retaliated, and were awarded a penalty from which Hogbin kicked another splendid goal.

A long kick by Giesen found touch near the corner flag, and from the line-out Kark secured and forced his way over. Hogbin equalised the scores by kicking another fine goal from the touch line. Almost immediately Guy's took the lead, when, following a fine run by Johnson, Robin picked up and crossed in the corner. Hogbin hit the far upright in another effort to convert.

The excitement was now intense, especially when Lee cut through the centre with Lambert in close attendance, but the latter missed his pass when he had a clear run in.

This movement was repeated a little later, but Clegg tackled well and put Guy's on the offensive again. A brilliant cut through by Giesen enabled Guy's to go further ahead. Although he was brought down inside the visitors' 25, Giesen managed to wriggle clear, to send in Lindsey for an unconverted try.

The Hospital were now playing well together; both Thomas and Darke intercepted passes, and from the latter's effort Guy's should have scored, but Lindsey was too anxious to pass to Johnson.

A great rally by the Old Cranleighans near the end compelled Guy's to defend desperately, and in front of the posts the Hospital got offside, but Lee missed another easy kick.

It was a splendidly contested game, a feature being the excellent kicking of Hogbin and the open play exploited by both sides.

Team.—W. B. Clegg; M. J. Lindsey, I. K. Thomas, J. E. Giesen, A. G. Johnson; C. G. Wright, R. J. Eustace; M. R. Kark, J. P. O'Shea, A. G. Heberlein, I. G. Robin, R. J. Drummond, T. Morgan, C. S. Darke, R. A. P. Hogbin.

Association

Guy's v. Emmanuel College

AT Cambridge, on Saturday, November 5th, Guy's beat Emmanuel College by 2 goals to 1. The weather was very generous, and a fast game was played under ideal conditions.

Boucher and Colbert were unfortunately absent from the Hospital side, and their places were taken by Johnson and Morgan.

The game started with a great amount of mid-field play, followed by some dashing raids by the College forwards. Midway through the first half, some good play on the right wing resulted in a centre which Morgan had no difficulty in placing out of the goalkeeper's reach. The College immediately started pressing more vigorously, and a corner kick was very nicely headed in by their centre-forward. Half-time still found the score at one goal each.

The second half brought out some long passing, which kept both wing forwards well on the move.

More good work on the right by Groom and Marshall, who were the best of the forwards, brought about another goal. This time Woodiwis converted the centre. The College tried very hard after this reverse, but could not pierce a stubborn defence in which Osborne at centre-half and Stoneham in goal were very sound.

Hospital Information, etc.

Pass List

L.D.S., R.C.S. (Eng.).

FINAL EXAMINATION.

November, 1932.

PART I.

Surgery.

H. C. Walsham
P. K. Perren
S. Rosenberg
H. C. Tippett
H. R. P. Annett
R. Chartier
T. Weiner
E. J. Freeman
A. R. Gillies
D. M. Wilson
D. Lennie
L. G. Lyle
K. Morris
C. G. O. Nevard
A. Pryor
J. W. Rose
S. N. Tinkler
F. J. Bloor
C. S. Pitt
I. E. W. Whitling
A. F. Town
H. Burch
W. V. A. Denney
J. Entwisle
N. E. Gillham
R. G. V. Houlson
K. E. Lawrence
G. D. Lloyd
R. S. Martin
E. H. Musgrove
J. H. Pitman
D. Robertson Ritchie
G. J. Rubie
B. G. F. Turner

PART II.

Dental Surgery.

P. K. Perren
S. Rosenberg
A. F. Town
L. G. Blackham
J. Bromley
C. K. Brown
R. J. Cowling
J. T. Cramp
H. Gibbs
C. J. Hartley
T. Ireland
J. F. Paterson
H. J. Redman
H. A. Stanger
H. V. Sydenham
C. S. Pitt
H. C. Tippett
G. B. W. Bateman
L. D. Dale
J. K. Donald
G. G. Ellis
D. A. Fairfax
R. T. Garner
E. R. Heathcote
T. Helmer
C. G. Palmer
B. W. Sage
S. P. Saunders
P. A. Sloane

Papers by Guy's Men

R. A. Greeves. Temporary changes in refraction of eye in diabetics. *B.M.J.*, 1932, ii, 963.

A. W. Iredell. Account of mosquito-proofing carried out by R.A.F. in India. *Proc. R.S.M.*, 1932, xxvi, 1.

P. Turner. Lumbar hernia. *Proc. R.S.M.*, 1932, xxvi, 50.

M. Campbell. Partial heart-block due to quinidine. *Lancet*, 1932, ii, 1157.

Sir W. Hale-White. Bacilluria. *West Lond. Med. J.*, 1932, xxxvii, 232.

G. F. Gibberd. Breech presentation. *Clin. J.*, 1932, lxi, 565.

J. D. Cambrook. Parodontal abscess and its treatment. *Brit. Dent. J.*, 1932, liii (2), 646.

F. H. Fuller. Fractures. *Brit. Dent. J.*, 1932, liii (2), 647.

Change of Address

J. B. Hine, L.D.S., R.C.S. (Eng.), 39, David Place, Jersey, C.I.

F. D. Gratrix, L.D.S., R.C.S. (Eng.), 74, Richmond Road, Twickenham. *Pope's Grove* 2025.

H. V. Leigh, J.P., M.D., B.S., M.R.C.S., L.R.C.P., L.M., Bro Castle, near Cowbridge, South Wales.

O. Ive, M.R.C.S., L.R.C.P., Bromley House, Westerham Road, Warlingham. *Upper Warlingham* 12.

F. H. Stevenson, M.B., B.S., M.R.C.S., L.R.C.P., 14, Denmark Avenue, Wimbledon, S.W.19. *Wim.* 6246.

Births

HECKELS.—On November 21st, 1932, at 7, Ashley Road, Epsom, to Dorothy, wife of Graham W. Heckels—a son.

WHITTEN.—On November 7th, 1932, at Epsom, to Kathleen, wife of M. G. Whitten, L.D.S., R.C.S. (Eng.)—a son.

Marriage

IVE—DALRYMPLE-DAVIDSON. — On November 23rd, 1932, Oliver Ive to Isabel Dalrymple-Davidson.

EDS. { E. S.
M. J. McA.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

WITH this issue of the *Gazette* we wish all our readers a very happy Christmas. We feel sorry that our wish cannot be translated into a better action and that we have not been able to provide for you all a *Gazette* that breathes the real Christmas spirit. This you will see is no special number, the cover is not ornate or decorative, and you will notice that we have not raised the price. There is no sprig of holly or mistletoe to brighten its pages, no picture of a snow-bound countryside that you can enjoy as you sit comfortably by the fire smoking that Corona-Corona; there is not even the traditional ghost story ("No need for that," we can hear our critic say, "you are quite macabre enough"). Instead you will find herein two learned articles which, though you may put them aside for the moment, you will eagerly turn back to when the festivity and jollity is over, with gratitude to us for having given you something permanent by which to remember the Christmas of 1932.

Our readers are of such varied tastes and opinions that it is difficult to strike the right note in each case and hit off each person's particular fancy of a happy Christmas. But in our constant effort to please we shall try to amplify our bald good wishes more fully. We hope that the Sisters will have the best of luck in their Christmas arrangements; may the turkey be tender, may no luckless wardmaid come to blows with the precious Christmas crockery, or macerate the pudding; may the houseman be generous and discriminating in his choice of wines; and, above all, may the concert party, arriving on time, not drag on into the later hours of the evening when there is so much to clear away. May the Junior Pro., having for once pierced the unbending propriety of the Head Nurse, find that the relaxation is a lasting one and the care-free atmosphere no passing chimera. May the Head Nurse be successful in her hunt for the nook and cranny, and may the scheming and planning reach a successful and triumphant conclusion on the night of the Nurses' Dance.

For the ward clerk and dresser we hope that the watchful eye of his superiors will become a blind eye, that his fingers will be deft and his toes nimble on the day of the Ward Tea, and that for the stickiness of the glue and the cuts of the wire he will find compensation by a successful partnership at the Ward Dinner. With the Residents and "Niggers" we can only sympathise, but oh, that some of their parodies and even a few of their riddles may find an appreciative audience; and may that throbbing head and burning throat of the morning after prove more endurable than they are reputed to be.

And to the Staff we wish—A Long, Long Holiday!

WE would remind you that Guy's is celebrating Christmas on Boxing Day this year and that the first boom of the "Niggers" big drum will be heard in the Eye Ward on Monday, the 26th, at 11 a.m.

THE Christmas festivities would not be complete without the Residents' Ball, and that annual and important event takes place this year at the May Fair Hotel on Friday, January 27th. Tickets are one guinea each.

WE would like to offer our heartiest congratulations to the Matron on her recent election to the General Nursing Council. It is especially gratifying to see that the number of votes Miss MacManus received placed her fourth on the list of successful candidates.

GUY'S successes are often in the news nowadays, and this week we hear that Miss Dorothy Marsh, of the Dental X-Ray Department, has been

awarded the Archibald Reid Memorial Prize and Gold Medal of the Institute of Radiographs for her Thesis on " The Technique for Radiography of the Skull."

Miss Marsh's work has for long been admired here, and we are all glad that the authorities have now recognised her outstanding skill.

▭

OF the recently concluded Final Fellowship Class, 19 candidates presented themselves for examination, and the following nine were successful :—

Miss D. J. Collier	A. R. C. Higham
G. J. Hollis	T. F. Todd
R. P. Dalal	S. W. Allinson
H. L. Cleave	R. A. F. Weiner
C. B. Singh	

In particular we congratulate Mr. G. J. Hollis and Mr. T. F. Todd, most heartily on their triumph and Mr. Grant Massie on the way in which he so consistently manages to maintain such a high pass list.

▭

THE late Sir Alfred Fripp, by his will, left a sum of money to found an annual lectureship on Happiness and Success. The second lecture will be given by Lord Baden-Powell on Tuesday, January 24th, at 5.30 p.m., at University College, Gower Street, W.C.1.

Admittance free by ticket. There will be a few numbered and reserved seats, price 2*s*. 6*d*., proceeds to be devoted to the Hackney Branch of the Invalid Children's Aid Association. All applications should be sent to the Secretary, 19, Portland Place, W.1, accompanied by a stamped addressed envelope.

Strictures of the Urethra other than those which are associated with Gonorrhœa

A Clinical Lecture by A. R. Thompson, Esq., Ch.M., F.R.C.S., at Guy's Hospital, November 14th, 1932

GENTLEMEN,—At the outset of this lecture it may be well to refer you to a lecture which was published in the Guy's *Gazette* of 21st March, 1931. That lecture dealt with the subject of Gonorrhœal Stricture. To-day the question of other forms of stricture will be discussed. Unfortunately, there cannot be a very satisfactory classification, but as there are not many this deficiency is not so important as it might otherwise have been. The causes, other than gonorrhœa, are congenital defects in the passage of, or narrowing of the mouth of, the meatus urinarius, injury to the urethra and acquired stricture. The meatal stricture may be due, apart from congenital defects such as hypospadias, to syphilis, either acquired or congenital, or sepsis with or without a long foreskin. There are no notes at Genito-Urinary Out-Patients of syphilis affecting the deeper parts of the urethra, but it will be well for you to recollect that Sir Henry Howse was accustomed always to give some potassium iodide in cases of stricture due to gonorrhœa, and in my own collection of notes 20 per cent. of venereal disease are associated syphilis and gonorrhœa, and it may well be that syphilis plays a more important role in the production of the chronic stricture than is generally thought.

The strictures that it is proposed to consider to-day, then, are traumatic, meatal and congenital, and those narrowings that occur with hypospadias.

TRAUMATIC STRICTURE

As in connection with the other cases so in this particular connection the years 1927-1931 will be considered, as there are quite a sufficient number of cases worthy of thought in these years, without our bringing in too many statistics.

You will find that there are several very good accounts of traumatic stricture in the textbooks, and for this reason it is only necessary for me to say that they may be associated with fractured pelvis, or they may not be so associated. They may be due to direct injury to the urethra, and the urethra may only be partially ruptured at the time of injury, and I well remember a clinical lecture of the late Mr. Clement Lucas, in which he pointed out the need for diagnosing the exact amount of injury and how important it was to conserve any continuity of the urethral mucous membrane.

If the injury to the urethra is associated with a fracture of the pelvis, then the rupture occurs in the region of the membranous portion of the urethra, but if the injury is due to direct injury, then it will be situated where the urethra lies between the force causing the injury and the pubic arch.

One of the most serious cases of traumatic stricture that I have ever seen was associated with a serious fracture of the pelvis. The man had been crushed between stationary buffers and a goods truck. He was very ably treated for the

immediate injury, and the bladder was opened suprapubically and drained. It was found that the bladder had been completely separated from the urethra in the region of the prostate gland. Healing of the injured part took place, but the suprapubic opening remained and urine leaked through it. I saw him about six months after the injury, and he then had a very tight and tough stricture high up in the urethra and near the bladder. I performed external urethrotomy and did a plastic operation upon the urethra, and the result was very good locally.

The fistula of the bladder now healed well. I had warned the relations that, as so much damage had been done to the urethra and to the pelvic cellular tissue, the outlook so far as the kidneys were concerned might be very bad. Sure enough, three months after my operation the patient got evidence of perinephritis on the right side, and X-rays also showed stones in the right kidney.

I cut down on the right kidney, and opened an abscess which lay between the kidney and the diaphragm, and the stones were also removed. This operation was eventually a success, but, owing to the formation of pus in the right kidney, it had to be excised at the end of six months. The patient did well so far as I was able to trace him.

Now here is a case in which you will do well, after the preliminary shock of the accident has passed and the necessary immediate treatment has been carried out, to warn the relatives of the chance of an infective renal condition. It is also a good example of the path along which ascending nephritis takes place. You have to remember that the lymphatics of the wall of the bladder and ureters are affected and that the inflammation spreads from thence to the capsule of the kidney, and thence to the interstitial tissue of the organ, and so I do not doubt but that in this case the perinephritis preceded the inflammation and the formation of stones in the kidney.

When a traumatic stricture has developed, several plans of treatment are available. But if the case can be warned as to the importance of regular treatment after the injury, then I am satisfied that the 18/22 policy that I have already referred to in my previous lecture is the best treatment. But you must be prepared for disappointments, and beyond this exhibition of instruments regularly we have the operation of internal urethrotomy to fall back upon, and this has done good in my hands, but, further than this, you may excise the stricture and get very good results indeed. I have even now a case of a man who had his stricture excised by me 20 years ago, and he still comes up with a urethra which will easily admit 18/22 metal bougie.

Before this was done he had led a miserable life, continually having to be catheterised, often very inefficiently.

Another complication of traumatic stricture is the formation of a stone in the bladder, with all its attendant evils, for you must realise that the presence of a stone in the bladder in these cases is due to sepsis, and when it has formed gives rise to more sepsis, and sepsis in the bladder may easily pass to the kidney and lead to death from ascending complications. I have had two cases of stone-formation occurring after a traumatic stricture has occurred.

Now as to the question of the prognosis in these cases, though Mr. Kidd regards it as not being bad, my own experience leads me to suppose that the injury is one of the most dreadful that can happen to a man. If I am asked to certify in these cases, I always take a very grave view and feel that the patient is justified in getting the fullest compensation, and he will do well never to compound for a lump sum. The patients are often young, and the bladder force is that of the young man, and such people do not get retention until the bladder force fails, and thus they may go on passing water fairly well until the final retention takes place. As a practical fact, some of them are irregular attendants, as is shown by the figures at Guy's, and come up for attention when they are in a poor way with retention, cystitis, or even stone, which, as we have seen, may occur as a complication of traumatic stricture. Nevertheless, at Out-Patients we have a few regular attendants, who are kept dilated up to 18/22, and in most cases are earning good wages as shop-walkers, etc.

As I have said, there are good accounts, especially in the older text-books, of traumatic stricture, but I am not quite sure that the immediate treatment of rupture of the urethra is always the best that can be provided, but I am quite sure of one thing, and that is that if you cannot deal with the rupture adequately you are fully justified in opening the bladder suprapubically so as to give the injured urethra every chance of healing up cleanly and without extra irritation. It is hardly necessary for me to point out that if the rupture of the urethra is associated with a fracture of the pelvis that fracture is a compound one, and the urethra should be kept as clean as it possibly can be. I have known a case in which this point was not realised, and the patient developed a nasty abscess both above and below Poupart's ligament, which had to be incised. The patient did well.

MEATAL STRICTURE

I shall now pass to meatal stricture, as that is a subject which has received scant attention. Just as the occurrence of traumatic stricture manifests itself in younger people than is the case with gonorrhœal stricture, so these meatal strictures occur usually at an older age than the stricture of gonorrhœal origin. From the fairly numerous cases that I have been able to study at Guy's, I think that we may classify these meatal strictures into syphilitic and septic, or perhaps both causes are acting together. But there is another cause that we must not miss.

As age advances the penis seems to get smaller, and thus the glans penis may retreat under cover of the foreskin. Owing also to the large and pendulous abdomen, the penis itself is not easily seen by its possessor, with the result that smegma collects under the prepuce and becomes septic, with the further result that a balano-posthitis is set up, which leads to contraction of the meatus. Elderly people cannot be too urgently enjoined to keep these parts clean, and always to uncover the glans when they are washing the penis, taking care to replace the foreskin when the washing is done

You must remember that the smegma collects on the surface of the glans, and there may be a lot of smegma there without it being very obvious until it is washed off. It is well known that chancres, provided they are treated adequately, heal very quickly, and without leaving much scar tissue behind, but if they become septic then much scar tissue may be formed. Now a chancre usually does not occur at the actual meatus, but one does see them occurring here occasionally, and if there be concomitant sepsis they may lead in this position to a stricture at the meatus. In a large proportion, then, of the cases of meatal stricture there is strong evidence of sepsis, and in some cases of syphilis, too, though, as I have pointed out, the syphilis will usually be accompanied by sepsis. Circumcision may be needed, but you should never lightly enter upon such an operation unless you first get rid of sepsis in the usual manner. An operation upon a septic penis or urethra is always a dangerous proceeding, as ascending nephritis may occur, with fatal results. However, most gratifying results frequently happen after this operation in elderly people. Let me add one word of warning in connection with this question of septic glans and meatus. You must always by adequate examination exclude the possibility of epithelioma of the penis being hidden under a septic end of the penis. This in itself does not lead to stricture, but I make no apology for mentioning this aspect of the inflammation, because I suppose that out of the large number of such cases I have known in 50 per cent. of the cases the diagnosis of abscess of the prepuce had been made, showing that cancer had not even been thought of. For these meatal strictures I have also performed an internal urethrotomy, but I always rather fear the effects of a cut in the region of the meatus as it does not heal by primary union, and therefore may lead to a worse condition than that which existed before the operation. Rapid and forcible dilatation is definitely bad. The inevitable tearing of the edges of the meatus will lead to the formation of very hard scar tissue.

In some cases I have instructed the patient to pass water, and then kept him in bed with restricted diet, and with this he has held his water for some time. A laminaria tent of small size is introduced into the meatus, and the application of this and succeeding ones has led to most successful dilatation of the meatus without causing pain, and I have reason to believe that the dilatation has been permanent in at least three cases. I wish now to relate two cases very briefly. The first case was that of an elderly man who came to see me some seven years ago. He had a redundant prepuce, and there was a good deal of dampness about the glans. He had undoubtedly a meatal stricture.

This was dilated and yellow oxide of mercury ointment was applied twice a week. He got better, and absented himself from Out-Patients for many years. He came up this year to report about some other trouble, and we found the meatus perfectly normal, and he was passing water well.

Now, apart from the successful issue of this case, another very interesting point is raised. Here is an external stricture absolutely cured and non-existent. Is it not possible that some of the usual type of stricture occurring further down the urethra such as we commonly see following upon gonorrhœa may be cured permanently? I think that the answer must be in the affirmative.

The other case is that of a young man, aged 22 at the present time. He came to see me three years ago with the history that he had always had trouble with micturition. The meatus was then dry and white. It is still dry and white, and though he comes regularly for gentle dilatation up to 18/22 metal bougie and has had full courses of mercury and potassium iodide, he really does not get better, though he gets about his work well enough and the meatus is kept open.

I have to record another case in which circumcision was associated with the production of a stricture at the meatus. I am sure the circumcision was properly done, but it went septic after the operation, and the case was sent to me for treatment for the stricture. This was dilated with a laminaria tent, and the man has had no further trouble.

CONGENITAL STRICTURE

So far, then, we have dealt with traumatic and meatal stricture, and now I wish to consider the question of congenital stricture. I have seen two cases in 22 years, so that the condition must be sufficiently rare. Both were boys about 18 years old, and both had strictures about an inch long in each case, situated about $4\frac{1}{2}$ inches down the urethra. Both responded well to dilatation, and one went to the Colonies, where he was proposing to take up some work.

The other did well so far as I know, but he has not been traced.

HYPOSPADIAS

But there is another congenital lesion of the urethra that may lead to what is, in fact, a stricture. I refer to the condition that is commonly known as hypospadias. In this condition the urethra does not, as a rule, extend to the end of the glans, or, if it does, may not meet the dimple at the end of the glans penis that forms the termination of the passage. May I digress for rather an interesting mechanical point?

In the normal penis the actual passage is compressed from above down, but the meatus is compressed from side to side. Thus the penis is really rifled just like a modern gun. This rifling system projects the stream well, and better than a simple tube would do. I believe the nozzle of the pipe used by the Dublin firemen is constructed on the model of a penis, but cannot guarantee the truth of this remark.

Now in cases of hypospadias in which the opening of the urethra does not meet the glandular pit as it should do, the opening itself is often very small, and, also, it is merely circular, and thus the stream of those boys who have hypospadias may not be so good as in normal boys.

But in connection with hypospadias there is another far more important point for consideration. The opening may be very small indeed, so small as to lead to retention of urine, and, short of this, to difficulty in micturition, *i.e.*, dysuria. All cases of hypospadias that can be seen externally with the unaided eye are associated with a hooded prepuce; therefore, with a hooded prepuce you will always look for an abnormal opening. The opening may be situated at the level of the corona, or in front of this. Perhaps only a lachrymal probe can be passed, and this is much the best instrument to use in the investigation of this type of case. Moreover there may be one or two other apparent openings that may be mistaken for the true urethra, but what their nature is in every case I do not know. Sometimes, undoubtedly they are attempts at the formation of a proper urethra, and are then more or less patent, but sometimes they are not patent. In cases of hypospadias a plastic operation may be needed, but gentle dilatation may do an immense amount of good. I mention these cases of hypospadias as they are frequently overlooked and may give rise to difficulty in cases of enlarged prostate or of ordinary stricture, and may be, in fact, more responsible for the obstruction than the major condition. If you are advising prostatectomy you will always look for such a possibility being present.

But there is another form of hypospadias, and that is the concealed form. Here the foreskin is not hooded, and the opening at the end of the glans may be normal in appearance. But if you open such an orifice as I am attempting to describe, you will find that the true urethral opening may be very small, and situated on the ventral side of the whole opening. It is unnecessary for me to add that before attempting to pass an instrument for enlarged prostate, or for stricture, you will always look at the meatus and see if it is normal. If you do not you may cause the patient a lot of unnecessary pain, and you may not pass this preliminary obstruction with the instrument that you have chosen. If you cannot enter the urethra the patient will not have much confidence in your ability to pass the obstruction further down. The pain, too, may lead to spasm of the urethral muscle, and lead to pain and difficulty in passing the instrument further.

I have now said enough about the other forms of stricture. They are traumatic, meatal and congenital, and those associated with hypospadias. I think that I have said enough to prove to you that such strictures are not without their importance, and, moreover, I suppose that they might be more common in the class of practice that you will be taking up than gonorrhœal strictures are, and for this reason my remarks may be worthy of your attention.

In conclusion, I wish to tell you what an intelligent dresser may do in the way of helping one to a true judgment in certain cases. I will not mention the dresser's name. He is not unknown on the football field. I have had a case of traumatic stricture under my care for several years, but it was only last week that I discovered that the patient had a very small and, for want of a better term we may call a poor, penis. This discovery was entirely due to the dresser, and it raises an important point, as with the injury that led to the traumatic stricture I think we must associate the small penis, and so it is possible that traumatic strictures may not only do harm to the present generation, but also to any future one, and this is another reason for its adequate treatment.

Hospital Rhymes—I

(Since the sons of so many old Guy's men have been intended, from early infancy, to follow in their father's footsteps, it has occurred to the writer that their education might, with advantage and such an aim in view, be started at a correspondingly tender age, and accordingly offers the following amendments of time-honoured ballads as illustrative of this idea.)

I.

SING a Song of Supers, they're waiting at his door,
Four and twenty students, shaken to the core,
When the door was opened the boys began to stare ;
Wasn't it a rummy thing, the Super wasn't there !
Is he in the Counting-House filling up his purse ?
Is he in the Colonnade talking to a nurse ?
No, he's up at Vine Street, clinging to the rail,
Trying to get the magistrate to let him out on bail.

II.

Professor, Professor, where ha'e ye been ?
I've been to post-mortem to luke at a spleen.
Professor, Professor, what did ye find there ?
I found both the ureters filled with despair.

III.

Ride on a bike, or walk if you like,
You'll find a fine multip. wherever you hike.
Whether it's dead or whether alive,
She shall have baby before you arrive.

IV.

Who killed the Bean ?
I, said the Vas, with a bottle of Bass,
I killed the Bean.

Who saw him die ?
I, said the Cord, was too busy, thank Gawd,
I didn't see him die.

Who'll toll the bell ?
I, said Aorta, as I feel that I oughter,
I'll toll the bell.

Who'll dig his grave ?
I, said the Radius, with my hypospadias,
I'll dig his grave.

Who'll deck the hearse ?
We, sa'd the Rhombi, with pieces of thrombi,
We'll deck the hearse.

Who'll pay the costs ?
I, said Masseter, if I bust the gas-meter,
I'll pay the cost.

All the lachrymal glands are secreting saliva,
For now there is no one to give them a *viva*.

Bye-bye, kiddies. More of this next week.

AUNTIE ENEMA.

The Effects of Trauma to the Brain

A Paper read before Guy's Hospital Physical Society, by S. Wass, Esq.

MR. CHAIRMAN and GENTLEMEN,—To those of us who have not yet passed through the Neurological Department, practical experience of head injuries is almost entirely confined to the surgical aspect of the subject, with consequent neglect of the important neurological aspect. The number of cases of acute head injury which require surgical intervention is few and during a busy " take-in " week interest is apt to be lost in cases to which palliative treatment alone is given. With the idea of attempting to restore the balance between neurology and surgery, I intend in this paper to discuss principally the neurological aspect of brain trauma and, as an introduction to this, I should like to refer for a few moments to the mechanics, physiology and physiological pathology of the cranium and its contents.

THE CRANIUM AND ITS CONTENTS

Physically the skull is not as rigid as it appears. It yields to a remarkable degree when an external force is applied and recovers its form with great elasticity. The degree and form of this temporary deformation depend upon the nature of the external violence. When a person falls with his head on a flat surface the skull bends as a whole and undergoes what Trotter calls a " general deformation," flattening occurring at the poles to which violence is applied, and although bulging occurs at the corresponding equator, the total effect is a sudden irresistible diminution of the cranial capacity. If the external force is sufficient to deform the skull beyond its elastic limit a fracture results. When the skull is struck by a small object the inbending of bone is limited in area and only a " local deformation " occurs, with

or without fracture. In this case there is no diminution of the cranial capacity, and therefore none of the clinical consequences of such a condition. The extent and severity of the immediate cerebral symptoms of a head injury are proportional to the amount of "general deformation," and the inbending of bone may produce effects by two modes of action, namely, the sudden momentary diminution of the cranial capacity and the infliction of a blow upon the immediately underlying brain. These modes of production of cerebral symptoms will be considered later.

The intracranial space is completely filled by its contents, the brain and the circulating fluids. Blood enters the cerebral arteries at the pressure of the carotids, and as it passes via the arterioles to the capillaries the pressure rapidly falls, until by the time it reaches the veins and then the dural sinuses it is little above zero. The total sectional area of the venous outlets from the skull being much greater than that of the arterial inlets, the current of blood is much slower in the sinuses than in the arteries, although the amount of blood flowing through the outlets and inlets in a given time must be equal. The veins and sinuses together have a much greater capacity than the arteries, and there must therefore be a large reservoir of blood on the venous side within the skull which might at any time undergo considerable diminution by an increase of pressure outside the veins, without the venous outlet being reduced below the capacity of the arterial inlet.

The blood pressure in the veins and sinuses is within the influence of the suction action of the respiratory movements, and therefore varies within considerable limits. The pressure of the cerebro-spinal fluid corresponds closely with the venous pressure, so that the general intracranial tension is approximately that of the veins, and this general pressure is normally the same in different parts of the skull. The brain tissue itself, being minutely permeated with capillaries and being in itself semi-fluid and of slight rigidity, is at a pressure intermediate between the arterial and the venous. This capillary pressure is much lower than the arterial, but less fluctuating than the venous.

Thus we may distinguish three grades of pressure as prevailing within the skull. Firstly, the general intracranial tension, which is that of the veins, sinuses and cerebro-spinal fluid. This is a low pressure, and is subject to respiratory fluctuations. It is that of the medium in which the brain is situated, and the fluids that stand at this pressure constitute a buffer which acts as a protection to the brain. Secondly, there is the capillary pressure, which is that of the brain substance itself and represents most of the resistance which the brain offers when pressure is made upon it. In compressing a part of the brain until it is rendered anæmic, this capillary pressure has to be overcome in addition to the slight elasticity of the brain substance. Thirdly, there is the arterial pressure, which is the pressure of the carotids and therefore considerably higher than the capillary pressure. This high pressure, being within strong walled vessels, is, of course, shut off from being communicated to the brain substance or the cerebro-spinal fluid. The effect of a rise in blood pressure is to accelerate the blood flow through the brain—it can have no other effect as long as the arteries do not give way, and can therefore in itself produce no effect in function.

It is found experimentally that the excitability of the cerebral cortex is closely related to the circulation within it, venous congestion or stasis causing anoxæmia and increased excitability, anæmia causing paralysis. Cushing made windows in trephine openings in animals' heads and injected fluid into the cranial cavity to increase the intracranial tension and thus interfere with the circulation. During the injection the surface of the brain was observed through the windows. The increased pressure which caused venous congestion and cyanosis was accompanied by irritative phenomena, whilst the point at which the cortex became white and obviously anæmic was marked by the sudden onset of paralytic symptoms.

The term "irritative" as applied to a cerebral lesion implies abnormal irritability, *not* actual excitation, and the conception that a piece of bone sticking into the cortex can produce fits similar to those produced by faradic stimulation receives no clinical or experimental confirmation. Moreover, anything approaching in intensity the stimulation of the cortex by faradic current probably never occurs in injury or disease. Since the brain is normally constantly receiving and responding to stimuli, this increased cortical excitability will account for the apparently spontaneous nature of many irritative phenomena.

Disturbances of the normal conditions of the cerebral circulation may, therefore, produce both irritative and paralytic symptoms, and as an example of how this may be brought about we will consider briefly a case in which arterial hæmorrhage occurs outside the brain. When such an artery is torn, bleeding occurs freely unless the blood pressure as a result of concussion is low. The skull is rigid to such bleeding pressures, and the cranial contents as a whole are incompressible, so that free bleeding can be accomplished only by displacement of some of the cranial contents. The contents at the lowest pressure are most

easily expelled, and so, *pari passu* with the bleeding, we get an expulsion of some of the blood from the sinuses and veins and some of the cerebro-spinal fluid. This expulsion of venous blood can go on up to a certain point without embarrassment of the circulation, and the arterial hæmorrhage is, therefore, clinically latent. Further compression of the veins reduces the venous outlet below the needs of the supply still coming in from the arteries and therefore venous congestion obtains, with its accompanying cortical hyperexcitability and irritative symptoms. Further, hæmorrhage must gain room for itself by displacing fluid at a still higher pressure, namely, that in the brain capillaries. This involves actual compression of the brain substance, which therefore becomes white and anæmic as the blood is squeezed out of it, and so paralytic symptoms supervene. This case is a typical one of extradural hæmorrhage, and serves to emphasise the importance of the cerebral circulation in the production of symptoms in certain cases of head injury.

INJURIES TO THE SKULL AND BRAIN

It now behoves us to consider head injuries in more detail. External violence applied to the skull may cause no gross anatomical damage on the one hand, or fracture of the skull, hæmorrhage from torn meningeal or cerebral vessels, or contusion and laceration of the brain substance, on the other. The importance of any of these injuries lies in the effects they produce upon the cerebral functions.

It has long been realised that the symptoms originally described as those of a fracture of the skull are not dependent on the fracture itself. Pott, in 1768, pointed out that vomiting, giddiness, and loss of speech and voluntary movements were often present without a fracture, and that fractures were often present without any objective signs or symptoms. Accordingly, I shall dismiss fracture of the skull, as a clinical entity, from any further consideration in this paper. Cranial nerve palsies resulting from a fractured base are likewise dismissed, for they are not true cerebral conditions.

To hæmorrhage from torn meningeal or cerebral vessels I shall refer briefly in passing. Such a hæmorrhage may be extradural, subdural or subarachnoid. Extradural hæmorrhage, with its characteristic lucid interval before the appearance of signs of cerebral compression, is easy of diagnosis. In subdural hæmorrhage the lucid interval is absent or very short, and signs of cerebral compression appear early, but this clear-cut distinction between subdural and extradural hæmorrhage may be absent owing to the presence of both. An interesting variety of subdural hæmorrhage, namely, chronic subdural hæmatoma, will be dealt with later as one of the important sequelæ of head injury. The third type of traumatic hæmorrhage, the subarachnoid variety, can only be diagnosed by the presence of blood in the cerebro-spinal fluid on performing lumbar puncture.

All the remaining types of head injury can be broadly divided into two groups. The first group comprises cases which end fatally in two to three days with post-mortem evidence of gross laceration and contusion of the brain substance, such cases showing profound stupor from the time of injury to the time of death, and being, therefore, of little use for clinical study. The second group comprises all cases which recover, and it is problems from this latter field which I shall discuss for the remainder of the time at my disposal.

THE IMMEDIATE EFFECTS OF HEAD INJURY

As stated previously, the immediate effects of a blow on the head are due to a general deformation of the skull, the inbending of bone transmitting the energy of the external force to the intracranial contents and so causing disturbances of circulation or structure therein. The inbending of bone may produce these effects by two modes of action, namely, the sudden momentary diminution of the cranial capacity and the infliction of a blow upon the immediately underlying brain.

Let us first consider the diminution of the cranial capacity. The force of the blow is distributed through the whole of the cranial cavity and is applied to all its contents alike and instantaneously, the conduction of the shock being effected through the fluids of the cavity. The encroachment on the cavity is met by a general expression of intracranial contents, but the fluids, being more mobile, generally provide the material to be displaced, the brain substance itself only being expressed when the violence is very great. The compressing force is always relatively great, and is applied to all the cerebral vessels alike, and so we get an immediate widespread obliteration of the capillaries and anæmia of the brain substance. The duration of this compression is only momentary, and immediately after the blow the skull regains its form and the emptied capillaries mechanically refill. This momentary cerebral anæmia has been put forward by Trotter as the cause of the clinical condition known as " concussion," but we shall see later that it does not satisfactorily account for all the phenomena of that condition.

Now to consider the effect of the impact of the inbending skull on the underlying brain. In spite of its soft consistence the brain, when struck,

behaves like a solid body and transmits directly a considerable part of the force. The effects of this are found in the path of transmission of the force and are four in number. First, there is local contusion or laceration at the site of the blow, the usual effect being a superficial discolouration of the brain by extravasated blood, laceration being uncommon in the absence of a local fracture. Secondly, there is polar contusion or laceration, known also as contusion or laceration by *contrecoup*. This occurs when the force of the blow is not exhausted by producing local contusion, the brain being driven into violent contact with a point on the skull diametrically opposite to the point of primary impact, thereby suffering surface contusion or laceration. Thirdly, there is contusion of the deeper part of the brain substance, the lesions taking the form of small hæmorrhagic and contused areas most abundant in the tract between the direct and polar contusions and being caused by the stresses and distortions to which the brain substance is exposed whilst transmitting the force. Fourthly, there is contusion of the ventricular walls, due to transmission of some of the force to the fluid within the ventricles. This forces the fluid along the central canal under a pressure sufficiently abrupt to contuse the walls of the aqueduct and fourth ventricle. The contusions occurring in this situation form the basis of another theory of "concussion," and so we must now turn our attentions to a closer study of that important clinical condition.

CONCUSSION

Concussion is defined by Trotter as "an essentially transient state, due to head injury, which is of instantaneous onset, manifests widespread symptoms of a purely paralytic kind, does not, as such, comprise any evidence of structural cerebral injury, and is always followed by amnesia of the actual moment of the accident."

It is hardly necessary to paint for you the clinical picture of a case of well-marked concussion. During the initial stage the patient is completely unconscious, no stimulus meeting with response, and is in a state of flaccid paralysis. The paralysis is extremely widespread, and the respiratory and cardiac functions may hardly continue in a severe case. This gross diminution or arrest of the vital processes closely resembles death, and may pass into it. That this does not occur more often is due to the previous health of the circulatory system apart from the accident. Recovery usually begins after a few minutes, and the patient will then respond to gross stimuli. The visceral reflexes are the first to return, and vomiting is common at this stage. The other cerebral functions recover more gradually in physiological sequence from the medulla upwards, and for some hours the consciousness may be clouded and the patient may complain of headache, giddiness, nausea and general weakness. Recovery, however, is complete and permanent at the end of 24 hours in an uncomplicated case of concussion. Before complete recovery obtains there may be some intensification of the symptoms, and to them may be added sleeplessness, irritibility, restlessness, and even delirium. This constitues the "stage of reaction."

THE PATHOLOGY OF CONCUSSION

The term "concussion" should be strictly confined to the above clinical condition, and as such it is characterised pathologically by the absence in uncomplicated fatal cases of any gross organic brain lesion such as could have caused the symptoms. Death, however, is rare in uncomplicated cases, and if it does occur it is strong presumptive evidence that some gross lesion is present. Direct pathological evidence from cases of simple concussion is, therefore, lacking, and our interpretation of its pathology depends largely on the comparison of the clinical picture with analogous states of other causation, together with such information as may be derived from our knowledge of intracranial physiology and the disturbances likely to result therein from trauma. Many theories and hypotheses have been evolved to explain the signs and symptoms of concussion, but none of them are entirely satisfactory.

(i.) *The "commotion" theory* is an ancient conception which postulates a "commotion" occurring in the nerve elements of the brain as a result of head injury. The "commotion" is supposed to cause molecular changes in the nerve elements and so bring about a temporary interruption of function. In support of this, Koch and Filehne produced conditions like concussion by repeated percussion of the skull, but Kocher pointed out that such symptoms were probably due to ordinary surgical shock, and that the evidence provides no explanation of the abrupt onset of concussion.

(ii.) *The theory of multiple microscopic lesions* of a destructive or degenerative character was said to be important in the production of concussion, and was held to account for the fatal cases in which no gross lesion could be found at autopsy. It is difficult to see how such lesions could be so numerous and widespread as to cause immediate loss of consciousness, and still more difficult to see how, if they are destructive lesions, the tendency to complete recovery is so strong.

(iii.) *Tillmann's hypothesis*, based on the differing specific gravity and inertia of the various intracranial fluids and tissues, is to the effect that a blow on the head disturbs the interrelation of cortex and white substance, presumably by organic interruption. The argument against complete recovery is again applicable here.

(iv.) *Duret's hypothesis* of cerebro-spinal shock suggests that the forcing of cerebro-spinal fluid from the lateral ventricles and its impact under pressure on the walls of the aqueduct and fourth ventricle causes organic damage there. This is supported by the consistent finding of hæmorrhages in this situation, but the production of organic damage is again inconsistent with the fact that recovery is so common. It is quite possible that contusion of the brain may be produced in this way, but that would have little relevance to an uncomplicated case of concussion. Possibly this mechanism may assist in producing momentary anæmia of the bulb, and so give rise to the respiratory and circulatory symptoms of concussion.

(v.) *Trotter's theory* attempts to account for almost the whole clinical syndrome of concussion on the grounds of temporary vascular embarrassment with no structural lesion. He points out that the sudden loss of consciousness and generalised muscular collapse are clearly paralytic signs, and suggest that the seat of paralysis is the cerebrum; the respiratory and circulatory signs point to paralytic disturbance of the medulla. The physical cause of paralytic brain lesions is anæmia of the cerebral tissues, as proved by Cushing's experiments, and so Trotter presumes that a blow on the head causes a momentary hyperacute compression of the brain and gives rise to a widespread capillary anæmia. This theory apparently explains the instantaneous onset of concussion, and accounts for the fact that it is characteristically produced by accidents causing general deformation of the skull and usually absent from cases in which deformation has been strictly local. It is also held to account for the obvious paralytic nature of the symptoms and the fact that they tend to disappear spontaneously.

In accounting for the symptoms of the stage of reaction, Trotter considers three factors, namely, the delayed and imperfect recovery of the cerebral circulation, the effects of the more or less prolonged cerebral anæmia and the effects of the minor injuries to the brain tissue, *e.g.*, capillary hæmorrhages inflicted at the time of the accident. He points out that the rebound of the skull to its normal shape probably aspirates blood back into the vessels, but that the reflux will be more complete and rapid in the veins than in the capillaries, so that some relative cerebral anæmia persists and is further prolonged by the feebleness of the general circulation. This secondary disturbance is taken to account for the faintness and giddiness which are common symptoms during the stage of reaction. The further symptoms of headache, restlessness, clouding of the mentality and delirium are taken to be irritative symptoms due to venous congestion caused by a slight degree of increased intracranial tension. This increased intracranial tension is said to be due to a slight general œdema of the brain, which is correlated with the commencing resolution of the minute or microscopic hæmorrhages scattered throughout the brain substance.

Trotter's theory of concussion, most ably expounded in his original work, has held sway for many years, but it has several objections. The initial loss of consciousness in concussion is instantaneous and recovery is relatively slow, even in mild cases, and if the condition was due to cerebral anæmia recovery should be more rapid. In cases of loss of consciousness from cerebral anæmia due to sudden adoption of the erect attitude in debilitated persons, recovery occurs immediately the position of the head relative to the heart is adjusted by a fall to the ground. Moreover, a more prolonged cerebral anæmia occurs in a Stokes-Adams seizure, and yet consciousness returns as soon as the circulation is re-established. Again, the acute compressive theory does not account for the varying times of unconsciousness which occur in cases of concussion. Presumably the longer times are due to more severe blows, but the duration of the compression of the brain, should it have occurred, cannct have been of any longer duration.

On closer investigation the so-called irritative symptoms of the stage of reaction are not satisfactorily explained by Trotter's theory of cerebral œdema and increased intracranial tension. Ritchie and Symonds, working separately, have investigated numerous cases and shown that the mental state is in no way proportional to the intracranial pressure, many of the cases having normal pressures. Moreover, other pathological conditions giving rise to cerebral œdema, such as cerebral tumour or uræmia, do not produce a clinical picture in any way similar to the traumatic state. The mental state in these cases is one of profound stupor with apathy, and there is none of the irritability, restlessness and confusional excitement characteristic of the traumatic state. May not this irritable and delirious condition be merely a stage in the recovery of consciousness? The higher cortical functions have not yet recovered,

and both mental and motor activities are running wild owing to lack of higher control.

Ritchie has compared an injury to the brain with an injury to a peripheral nerve. Obstruction to the circulation in a nerve fails to interrupt its functioning capacity except after many minutes, but a sudden jar to a nerve trunk causes an immediate interference with function, the severity and duration of which are proportional to the severity of the jar. The recovery of function here, as in concussion, is a relatively slow process. Thus, if we accept Ritchie's comparison, the ancient conception of a " commotion " occurring in the nerve elements appears to be the correct explanation of the sudden loss of consciousness in concussion, a molecular change in the elements bringing about temporary interruption of function. That the myelin sheaths at least are easily disturbed by a jar is proved by the fact that very slight carelessness in removing a spinal cord at autopsy alters the myelin sheaths sufficiently for them to be stained by Marchi's method.

To explain the pathology of the stage of reaction we must look for some widespread lesion. Direct pathological evidence is scanty, but suggestive. In fatal cases which show no fracture of the skull or meningeal hæmorrhage, careful microscopical examination shows, in addition to scattered hæmorrhages, widespread alterations in structure of the nerve cells and films. Similar examination in cases which survived but died later of intercurrent disease has shown chromatolysis and lipoid degeneration of nerve cells, pigmentation and fatty degeneration of myelin and a widespread diffuse reactive process of the micro- and macroglia (Rosenhagen). These changes are found in the form of multiple small foci throughout the whole extent of the cortex. We must therefore conclude that the essential cause of the clouded consciousness and irritability, which Symonds calls " traumatic stupor," is direct injury to neural tissues, with subsequent reactive changes, and that œdema and increased intracranial pressure play only a subordinate role. In this conclusion we are once more harking back to an ancient theory, namely, that of multiple microscopic lesions occurring throughout the brain.

CEREBRAL CONTUSION

We must now consider briefly another immediate effect of head injury, cerebral contusion, which is a condition distinct from concussion though often associated with it. In fatal head injuries without a compound fracture there is frequently seen much diffuse bruising of the brain, often maximal in intensity at the point of *contrecoup*. This is cerebral contusion in its literal sense. In cases of head injury which recover with symptoms of cerebral damage we may reasonably suppose that some lesser degree of such bruising is present. A concussed patient who does not make a complete and permanent recovery after the arbitrary time interval of 24 hours is considered to have some degree of this cerebral bruising, and is therefore suffering from cerebral contusion. Symonds makes a further arbitrary division of these cases into major and minor cerebral contusions.

Major contusion is characterised by the persistence of a state of stupor at the end of the 24 hours immediately following the accident. The initial accident is almost always sufficient to have caused concussion, that is, complete loss of consciousness, originally, but, instead of a complete recovery at the end of 24 hours, the mental condition remains one of stupor and restlessness, or even delirium. This condition persists for days or weeks with gradual improvement, in the form of brief intervals of lucidity, until the mental condition returns to normal. Having regained his full senses, the patient passes out of the category of major contusion and his further symptoms are those of minor contusion.

Minor contusion is a state of symptoms rather than signs. It may be consequent upon a major contusion, it may develop out of a case of apparently simple concussion, or again it may follow an injury which was not sufficiently severe to cause concussion. The symptoms may follow directly upon the injury, but more commonly develop after a latent period of some hours, days or even weeks. Thus a patient who has been concussed may have made an apparently complete recovery and yet later develop the disabling symptoms of a minor contusion. The most constant of these symptoms are headache, giddiness and mental disability. The headache is intermittent and severe and is related to alterations of posture, further aggravating factors being physical or mental exertion, noise and bright light. The giddiness is a transient sense of unsteadiness, also related to sudden changes of posture. The mental disability is chiefly one of inability to concentrate, defective memory and rapid fatiguability of the mental processes; in severe cases it may be associated with insomnia and nocturnal restlessness, and the condition must then be considered as approximating to that of major contusion.

THE PATHOLOGY OF CEREBRAL CONTUSION

The pathological basis which gives rise to the symptoms of cerebral contusion is again a matter of considerable variation of opinion. Trotter would account for the irritative symptoms of major

contusion on the grounds of hæmorrhage and exudate from injured cerebral vessels giving rise to cerebral œdema and increased intracranial tension, this in turn causing varying degrees of venous congestion and anoxæmia of the cortex and as giving rise to irritative cerebral symptoms. The persistence of these irritative phenomena for long periods he would put down to the fact that, whereas rapid resolution of a contusion in other parts of the body is brought about by free swelling, this is not possible in the brain owing to the restricted volume of the cranial cavity.

This theory is open to the same objections we considered when dealing with the reaction stage of concussion, and so it appears that we must again consider the symptoms due to a delayed recovery of the higher cerebral functions consequent upon a severe "commotion" having occurred in the nervous elements of the brain. It is reasonable to suppose that the symptoms of minor contusion are due to direct injury to neural tissues, the length of the interval before the appearance of symptoms being proportional to the time taken for the subsequent reactive changes to develop. We have already seen that such lesions do occur, and we shall later consider the part they play in producing post-traumatic symptoms.

THE PROGNOSIS OF HEAD INJURIES

The formation of an accurate prognosis in cases of head injury is very difficult, and any opinion given to the patient or his relatives should always be guarded. After consideration of the severity of the original injury, the most important prognostic point is the length of convalescence possible before the patient returns to his normal mode of living. A long convalescence with a very gradual return to normal life is essential for the avoidance of post-traumatic symptoms. In uncomplicated cases of concussion, complete and permanent recovery within 24 hours is the rule, but this assuring prognosis cannot be given until sufficient time has been spent in convalescence to put out the possibility of a co-existent, but latent, minor cerebral contusion. Symonds has followed up many cases of major and minor contusion, and his statistics show that a minor contusion has an even chance of returning to full work and only a very small risk of total incapacity from his symptoms if the correct treatment has been carried out during convalescence. A major contusion, however, has less than a one-in-three chance of returning to full work, and his chance of being totally incapacitated is also one in three.

THE REMOTE EFFECTS OF HEAD INJURY

Having now considered some of the immediate effects of head injury, their pathology and prognosis, we must turn our attention to the possible sequelæ of such injuries. Patients suffering from the remote effects of head injury are either suffering from the physical effects of the injury in the form of unresolved cerebral contusion, or the psychological effects of the injury in the form of an anxiety neurosis, or the effects injury to special parts of the brain in the form of traumatic epilepsy or permanent mental change. Before considering these most common of sequelæ I would like to draw your attention to two other late effects of head injury, both of which are rare, but may proceed to a fatal issue.

(i.) *Chronic subdural hæmatoma* is the first of these conditions. A slow ooze may occur from a ruptured vein with the eventual formation of an encysted blood clot, which will give rise to a fatal compression of the brain if not removed. The diagnosis of the condition is often difficult owing to a long latent interval following an injury, which might have been so slight as to escape the memory. The condition may be confused with that of cerebral thrombosis.

(ii.) *Cerebral abscess* is the second condition which may proceed to a fatal issue. It is a rarer condition than subdural hæmatoma, occurring in approximately one case per thousand. The original injury is always associated with a penetrating wound, such, for example, as a compound fracture or a nail penetrating the skull.

(iii.) *The "post-traumatic cerebral syndrome,"* of Foerster, is a comprehensive clinical term, recently introduced, to cover the various organic cerebral states which may follow head injury. It includes the symptoms presented in the convalescent stage after a severe injury associated with traumatic stupor, and also the symptoms presented as a sequel to minor injuries which may or may not have been associated with concussion. It therefore includes all cases of major contusion which recover, all cases of minor contusion and certain vague states known previously by such clinically descriptive terms as "post-traumatic neurasthenia," "post-concussional headache," etc. The clinical picture of the post-traumatic cerebral syndrome is characterised by the absence of any signs of focal damage to the brain. The prominent and most constant symptoms are those of minor cerebral contusion—namely, headache, giddiness and mental impairment—to which may be added true vertigo and diplopia.

Duret has long emphasised the organic basis of this condition, and it has recently been shown that this comprises minor degrees of damage to nerve cells and fibres followed by a reactionary process of repair with cicatrisation of the same kind as that already described as occurring in traumatic stupor and in minor cerebral contusion.

Marchand has called this reactionary process "traumatic encephalitis." Friedman, in America, has made extensive encephalographic examinations in patients showing symptoms of the post-traumatic state and has found definite changes in the encephalograms in over 90 per cent. of cases. These changes consist of dilatations and distortions of the ventricles and pulling over of the whole ventricular system to the side of the lesion. It is therefore suggested that these changes are due to the contraction of the scar tissue present in the brain, and that they may account for some of the post-traumatic symptoms.

(iv.) "*Post-traumatic neurosis*" is another possible sequel of head injury, and is usually based on the problem of compensation. The symptoms are like those of any anxiety neurosis with the patient's head as his chief concern. The presence of the compensation factor and the absence of any objective physical signs in so many cases of head injury make the diagnosis of this condition a very tempting one, but Symonds considers that its frequency is a good deal exaggerated. Friedman maintains that encephalography offers a valuable means of differentiating between a true organic post-traumatic syndrome (of Foerster) and a functional syndrome. Stevenson also considers that a patient is entitled to an encephalographic examination of the skull before neurosis is diagnosed, but Foster Kennedy points out that, before this means of diagnosis can be accepted, some uniform technique in the taking of aerograms must be established. Symonds considers that the patient's description of his symptoms is the best criterion. In this respect the description of the headache is particularly important, the neurotic headache being described as a discomfort rather than a pain, as continuous rather than intermittent, being aggravated only by mental stress and usually unassociated with giddiness. With regard to the mental symptoms, there is often a history of previous nervous breakdowns and a family history of instability in neurotic cases, whereas defective memory for recent events is a point in favour of organic cerebral damage. If the condition has developed from a major cerebral contusion, this is again in favour of organic damage.

(v.) *Epilepsy* is an important sequel to head injury, and its frequency is often under-estimated through not recognising the latent interval between the original injury and the incidence of the attacks. A history of previous attacks and a family history of epilepsy must, of course, be excluded before a diagnosis of "traumatic epilepsy" is made. Epileptic attacks may occur in the early stages of major contusion; these are of the Jacksonian variety, and are probably due to subarachnoid hæmorrhage; they do not always portend to permanent liability to attacks. More serious than these are the attacks which develop after a latent interval of months or years; they are generalised seizures and commonly persist.

Can concussion alone, without gross cerebral damage, give rise to epilepsy? The balance of modern opinion is that the minimal damage necessary to give rise to subsequent fits is scarring of the brain tissue or the presence of blood in the subarachnoid space. The nature of the attack varies with the part of the brain affected. Petit mal is rare, and is a change in consciousness resulting from frontal disorder; complex visual, auditory and psychic hallucinations result from disorders of the temporal lobe; gross colour fits result from occipital disorder, and grand mal is due to involvement of the motor cortex.

Wortis has done most of the work which relates cerebral cicatrisation to post-traumatic convulsive phenomena. He produced experimental cerebral scars in cats either by aseptic laceration of the brain through a trephine hole or by a blow on the head sufficiently hard just to fracture the skull. At a later date the sensitiveness of these cats to standardised convulsants was tested, and in all cases an increased sensitiveness was demonstrated against normal control animals. The gross post-mortem changes found on killing these experimental animals were meningo-cerebral adhesions, contracting cerebral cicatrices and distortion of the ventricular system. In prolonged cases of meningo-cerebral adhesions, structural changes in the underlying cortex were shown, and these were associated with spontaneous convulsions during life. Whether the increased sensitiveness of traumatised animals to convulsants and the subsequent spontaneous convulsions are due to traumatic changes in the cortex or to the presence of blood in the subarachnoid space is not yet known with certainty. Cases of traumatic epilepsy cured by the operative removal of a cerebral cicatrix have been reported, and this opens up a field of surgery the results of which may be of outstanding value.

(vi.) *Permanent mental change* may also follow head injury. The mental changes range from the memory impairment and lack of concentration characteristic of minor contusion to absolute insanity at the other end of the scale. Institutional care is rarely necessary, but lesser degrees of mental impairment are not uncommon, especially after major cerebral contusion.

(vii.) *General nervous disorders* may be unmasked by physical injuries. Organic disease of the nervous system, previously latent, has been known to be precipitated by trauma to the brain,

and as examples of this may be cited tabes dorsalis, general paralysis and paralysis agitans.

That, gentlemen, brings me to the end of my subject. I have attempted to put forward the various theories and hypotheses to account for the symptoms and sequelæ of brain trauma and to indicate the trend of modern opinion. In so doing I hope I have not confused the issue. Omissions have, of necessity, been numerous, but I hope the meeting will discover some points of interest which will arouse discussion. In conclusion, I should like to thank Dr. Symonds and Dr. Denny-Brown for the invaluable advice and assistance they have given me in the writing of this paper.

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Correspondence

Lactation in 1832

To the Editor of the GAZETTE

SIR,—Having recently undertaken a survey of the literature on "Lactation," I was particularly interested in the paper on that subject read before the Guy's Hospital Physiological Society by Messrs. Wright and Channell. Very little advance in our knowledge seems to have taken place during the last hundred years, and the statement that "one of the greatest advantages of natural milk is that it contains antibodies for the protection of the child against disease" still awaits experimental support. None is yet forthcoming, and the inclusion of this unfounded statement, in all published lists of the advantages of breast-feeding, is liable to be taken as a criterion of the pains and thought that have been expended in compiling them. I do not doubt that some immunological factor is, in all probability, passed from mother to child in the milk, but the real advantages of breast-feeding over all artificial foods are so marked that they do not need the treacherous support of possibilities parading as facts.

Yours, etc.,

LESLIE HOUSDEN.

The Colonnade Letter Rack

To the Editor of the GAZETTE

SIR,—Some time ago an edict went forth that only letters received through the post would be displayed in the Colonnade. This led to considerable inconvenience, and finally increased accommodation was provided, but, alas! not protected from the fingers of the meddler. The new letter rack has proved to be a constant source of delight to the breed who write on walls and grave their mark on railway carriage windows, and who, in their school days, altered, by a few deft strokes the title of their Latin primer.

To those of us who have been used to treating other people's correspondence with respect, the efforts of these people is unpleasant in the extreme, nor does it favourably impress the many visitors whose eyes catch the increasingly crude remarks of these defilers.

To those unable to restrain themselves may I point out that a room is reserved in the College where such activities are positively encouraged, and their turn will come.

Yours, etc.,

ROBERT L. SOPER.

Guy's Hospital,
S.E.1.

Sport

Rugby

Guy's v. Richmond

ON Saturday, December 3rd, there was a very large attendance at Honor Oak Park to see the Hospital defeated by 2 placed goals and a try (13 points) to a placed goal (5 points).

Although the ground was on the heavy side, the exchanges were fast and many excellent movements were carried out by both sides. The Hospital pack did extraordinary well against a much heavier set of forwards, and it was certainly not their fault that Guy's did not score on more than one occasion.

The game was full of excitement, especially towards the end of the first half and for a quarter of an hour after the interval, when Guy's pressed heavily and did everything but score. It was during this period that the visitors' defence rose to great heights and kept their line intact as the result of some first-class tackling and accurate marking.

Richmond were the first to open up the game, but their backs failed to make ground, and Windsor Lewis put Guy's on the attack as the result of a long kick to touch. From the line-out Thomas had a good chance to score, but he was tackled and later penalised for holding on to the ball too long.

A penalty to Guy's for offside enabled Morgan to find touch in Richmond's 25, and for a time Guy's were superior, but faulty passing between the three's threw away at least two good chances.

Profitting by this "let off," the visiting forwards led by Hopwood, Roncoroni and Robins, carried out a determined raid and transferred play to the other end of the field; however, Guy's sent them back and Giesen intercepted, but ran into a crowd of forwards in front of the posts and was dispossessed. Windsor Lewis then created a nice opening for Giesen, but the latter was not quite prepared and missed the pass.

After Allen had made a good attempt to kick a penalty goal for Richmond, Morgan came away with the ball at his feet, and both sides made efforts to open out, but defence prevailed until Hamer gave Snelus a timely pass from which he kicked inwards, for Burgess to take the ball and pass out again. Guy's were taken by surprise, so much so that they allowed Snelus to run in behind the posts without attempting to stop him. Bowman added the extra goal points.

From then until half-time, Guy's took up the running, and Windsor Lewis made two fine individual efforts to reduce the deficit when he tried to drop a goal and, immediately afterwards, made a fine run along the wing, only to be stopped, first by Chapman and then by Wigan.

Immediately after the interval Guy's made determined efforts to score, and fine three-quarter passing carried them within five yards of the line. Some short hand-to-hand passing, in which Darke was conspicuous, and a cut through by Lindsey, which was only checked on the line, caused Richmond some anxiety. Try as they might, the Hospital could not pierce an impregnable defence; several chances were thrown away and Morgan missed a sitter after Lewis had created the opening.

Both sides attacked in turn, and Giesen made a good attempt to drop a goal after Kark had nearly scored. Richmond retaliated, but Clegg cleverly fielded a hard punt and, although harassed by two or three forwards, found touch near midfield.

Then Richmond surprisingly increased their lead when Bowman ploughed his way through the Hospital defence, dribbled over the line and touched down for a try, which he converted.

Almost from the kick-off Giesen made a splendid run through the centre, and passed to Hogbin, who dashed over behind the posts for a try, which he also converted.

There was plenty of excitement and play was very keen, but Richmond added to their score when the ball came across quickly from the right to Snelus, who crossed in the corner.

Team.—W. B. Clegg; M. J. Lindsey, I. K. Thomas, J. E. Giesen, A. G. Johnson; W. H, Lewis, R. J. Eustace; M. R. Kark, J. P. O'Shea. A. G. Heberlein, I. G. Robin, T. Morgan (Capt.), D. M. Leeming, C. S. Darke, R. A. P. Hogbin.

Guy's v. Aberavon

ABERAVON gained a well-deserved victory over the Hospital at Honor Oak Park on Saturday, December 10th, by 4 tries (12 points) to a placed goal (5 points).

On the run of the game the visitors should have won by a substantial margin, but, luckily for Guy's, Owen James, Aberavon's dependable place-kicker, had left his shooting boots at home, and he not only failed to convert any of the tries, but also missed two easy penalties.

Aberavon were decidedly faster and cleverer behind the scrum, and the half-backs Egan and Roberts were a continual source of danger; the former played a magnificent game and was easily the best back on the field. He not only scored one try himself, and was directly responsible for another, but he was always setting his backs going in the attack and none of the Guy's backs could cope with him.

The Hospital forwards were better than the visiting pack, and Morgan, Darke and Hogbin all did well.

The team work of Aberavon was exceptionally good, and their quickness off the mark, forceful running and determination enabled them to set up a prolonged attack from the start. However, Guy's, with the aid of a cold, biting wind, were able to keep them out for a time by some good touch-finding, and when Hogbin charged down a clearance by the visitors' full-back, the Hospital nearly scored.

Giesen was particularly prominent, and his defence was superb, but, in spite of his efforts, Aberavon opened the scoring when Egan broke through following a scrum in the Hospital 25, and R. Lewis, with a most determined burst, got over near the posts. Then, almost from the same spot, Aberavon heeled and I. Roberts got the ball and, after hesitating, decided to break through by himself. Guy's, expecting him to pass out, allowed him to slip through to score near the posts.

Before the interval, Giesen made a fine run through the centre and started a movement which Johnson finished by scoring a good try behind the posts, which Hogbin converted.

With only one point separating the teams, Guy's had more of the play in the second half, but could not gain much advantage owing to the sound marking of the visitors' backs.

Lewis and Thomas should have added to Aberavon's score, but some erratic passing spoiled a good chance. However, the former atoned for this a little later, when he and Egan combined well and the latter was enabled to race through the defence for an unconverted try.

Following some excellent passing between the Aberavon centres, Phillips scored the final try for the visitors.

Team.—W. B. Clegg; D. E. Ashdown, I. K. Thomas, M. J. Lindsey, A. G. Johnson; J. E. Giesen, V. H. Bowles; M. R. Kark, J. P. O'Shea, C. S. Darke, I. G. Robin, D. M. Leeming, T. Morgan (Capt.), R. A. P. Hogbin, A. R. Clarke.

Fencing

Guy's v. Westminster

A THREE-WEAPON match was fought against Westminster School at Guy's on December 3rd. Both sides were below full strength, but Guy's proved the stronger, being winners by 10 defeats to 17.

In foil, Forbes was in good form and won all his fights. After losing his first bout with orthodox methods, Miles resorted to his ever-effective stop hit, with success. Irish, amid the alien foils, did his share by winning one fight.

He was much better, however, with the epée, being hit only once. Lawrence lapsed from his hitherto good form, although luck was rather against him. Hodgkin, too, found judicial myopia too much for him.

Wright, so long out of form, made an excellent come-back in sabre, epitomised by the winning of one fight after being two down. Irish and Forbes also fought well, each winning two assaults.

Scores: Foil—Forbes, 0 defeats; Miles, 1 defeat; Irish, 2 defeats. Epée—Irish, 0 defeats; Lawrence, 2 defeats; Hodgkin, 3 defeats. Sabre—Wright, 0 defeats; Irish and Forbes, 1 defeat.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.

M.B., B.Ch.

December, 1932.

S. M. Silverstone.

LONDON UNIVERSITY.

THIRD (M.B., B.S.) EXAMINATION FOR MEDICAL DEGREES.

November, 1932.

Honours.

*C. H. Rogerson.

Pass.

K. Biden Steele
W. H. Bradbeer
H. N. Collier
D. Erskine
G. Gilchrist
D. W. James
G. A. M. Lintott
R. G. Reid
R. N. C. Smith
G. H. Taylor
R. L. Waterfield
J. L. Woodhouse
S. W. Wright
†T. A. Gavin
†R. A. Q. Lay

* Distinguished in Forensic Medicine and Hygiene.
† Group 2 only.

Appointment

B. G. Scholefield, M.Ch., F.R.C.S., Hon. Surgeon, Herefordshire General Hospital.

Change of Address

S. M. Silverstone, M.B., B.Ch., 2690, Morris Avenue, New York City, U.S.A.

C. H. Housden, L.D.S., R.C.S. (Eng.), 24, York Road, Guildford. *Guildford* 590.

R. J. Cowling, L.D.S., R.C.S. (Eng.), Mountlands, Barras Cross, Liskeard, Cornwall.

M. Shaw, 123, Harley Street, W.1. *Welbeck* 3686.

Births

WATSON.—On December 12th, 1932, to Phyllis (née Martin-Clark) wife of Dr. L. K. Watson, Weybourne, The Avenue, Watford—a son.

Marriage

PITT-PAYNE—LARCOMBE.—On December 3rd, 1932, at the Parish Church, Bromley, Dr. Leonard George James Pitt-Payne, of Bromley, to Mabel Gwendolyn Le-May Larcombe, of West Wickham.

Eds. {E. S. / M. J. McA.